# 9th annual southern california economic summit

## COUNTY ECONOMIC REPORT

# SAN BERNARDINO & RIVERSIDE

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COUNTY ECONOMIC REPORTS

# SAN BERNARDINO & RIVERSIDE

Prepared by:
John Husing, Ph.D.
Economics & Politics

For questions regarding this report, please contact:
Kevin Kane, Ph.D.
Associate Regional Planner
Research & Analysis

Southern California Association of Governments
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90020

(213) 236-1828
kane@scag.ca.gov
www.scag.ca.gov

# 2018 Detailed Status of the Riverside & San Bernardino Economies
# Prepared for Southern California Association of Governments
**John E. Husing, Ph.D.**

## Executive Summary

For Riverside and San Bernardino Counties, a review of the most recent economic data and the overall trend since the turnaround began in 2011 provides very good news. First and foremost, the level of poverty in the area has declined significantly as employment has soared and unemployment dropped to historic lows. Poverty, which stood at 23.5% for children under 18 in 2016, was down to 19.3%. Poverty for all people dropped from 16.4% to 14.5%.

These changes occurred because job growth through September 2018 is on track to surpass its 2007 pre-recession high of 1,306,342 by 210,389 jobs or 16.1%, reaching an estimated 1,515,469. This occurred because job growth has surged for the past several years: up 47,575 (4.0%) in 2013, 55,933 (4.5%) in 2014, 64,217 (4.9%) in 2015, 48,667 in 2016 (3.6%), 49,433 (3.5%) in 2017, and 49,453 (3.4%) based upon 9-months of preliminary 2018 data. If 2018 holds, the area will have created 349,778 jobs in the 2011-2018 period of recovery and expansion. That is 209,128 (148.7%) or far more than double the 140,650 jobs lost in the Great Recession (2008-2010). Looking at the rest of 2018, there is every reason to anticipate growth levels will be sustained given the forces impacting the key sectors that make up the inland region's economic base (logistics, construction, health care, manufacturing, high-end).

Unemployment in Riverside and San Bernardino Counties has dropped. It was 4.1% in September 2018, down from 4.9% in September 2017. The area's August 2018 rate (4.5%) was the sixth highest among the 50 major U.S. metropolitan areas tied with Phoenix. It was down from second highest in 2017. Among nearby areas, Las Vegas (4.9%) and Los Angeles (5.1%) were higher.

A key metric challenging Riverside and San Bernardino Counties is the fact that 45.7% of adults 25 and older had high school or less education in 2017. That compares to 37.6% for the rest of Southern California (Imperial, Los Angeles, Orange, San Diego, and Ventura counties). Those with associate's degrees or higher were 29.8%, well below the 42.2% for the rest of the Southland. The share with bachelor's or higher was 21.4% versus 34.8% in the balance of Southern California. These facts limit the kinds of firms for which the area is competitive. These shares have improved from 50.3% (high school or less), 23.1% (associate's or higher) and 16.3% (bachelor's or higher) in 2000.

Like all regional economies, the key for Inland Empire's growth is the expansion of the economic base sectors for which it has competitive advantages. This is the group of activities bringing money to it from the outside world. Fundamentally, there are five key sectors:

- **Logistics** firms have located in the Inland Empire in response to its available land and the need to handle both the huge flow of goods moving in and out of the U.S. via both the Ports of Los Angeles and Long Beach plus the rapid expansion of fulfillment centers that handle the explosive expansion of e-commerce. They are on track to be responsible for 23.6% of the area's direct job growth in the 2011-2018 period (82,459). Based upon growth to date in 2018 (6.9%), the sector's total should reach 190,100 jobs in 2018.

- **Health Care** firms are expanding in the Inland Empire in part because the average worker in the sector is already serving 25.8% more people than California's average. Meanwhile, the Affordable Care Act has cut the share of local residents without health insurance from 28.8% in 2012 to 11.3% in 2017. Health care firms are also beginning to respond to the fact that 24.1% of the population was 55 years or older in 2017. The area's population growth was 366,042 people (8.7%) from 2010-2018. Based upon job growth to date in 2018 (1.6%), it is forecasted that the sector will add 2,200 jobs in 2017 to reach 138,200.

- **Construction** has historically been the major driver of the economy given its undeveloped land and Southern California's need for single family homes, apartments, industrial facilities, and infrastructure. The mortgage crisis upset the first of these needs and was largely responsible for the local sector losing 68,400 jobs from 2006-2011 (-53.6%). From 2012-2017, it has gained back 37,900 jobs, and in 2018, positive factors are appearing. Through June this year, total permit valuation is headed for an increase of 3.5% after rising 20.1% in 2017, 7.2% in 2016, and 13.4% in 2015. Based upon job growth to date in 2018 (6.2%), it is estimated that the sector will add 6,000 jobs to reach 103,000 positions. That would still be 24,500 jobs (-19.2%) below the 2006 peak.

- **Manufacturing** has been the economic base sector with sub-par performance. This stems from California's regulatory environment plus energy policies that in May 2017 had the state's industrial electrical cost (12.64¢) 135.4% above Nevada (5.37¢) and 83.5% above Arizona (6.89¢). As a result, the state has created only 57,300 manufacturing jobs (4.6% growth) since January 2011, and accounted for only a 5.5% of the 1,126,000 jobs (9.7% growth) created in the U.S. A good deal of job openings occur in the sector due to the need to replace aging baby boomer technicians. Based upon job growth to date this year, it is unfortunately estimated that the sector will add only 300 jobs in the inland area in 2018 to reach 99,000 positions. That would remain 24,400 jobs or 19.8% below the 2006 peak of 123,400 positions before the Great Recession.

For the first time, a high-paying sector is showing signs of starting to add to the economic base of Riverside and San Bernardino Counties:

- **Professional, Management & Scientific** work has recently started expanding. This appears to be a reaction to three factors. First, it has seen a doubling of residents with bachelor's or higher degrees from 2000-2017 (100.5%). Even though the inland area's population is less well educated than its coastal county competitors, in this period its overall percentage of college graduates grew from 16.3% to 21.4%. Its percentage of those with associate's degrees or higher went from to 23.1% to 29.8%. Second, the growth of the inland economy requires increasing levels of professional service providers given its 4.59 million people and 115,252 firms. Third, the re-emergence of the construction sector creates a need for engineers and other such specialists. Based upon job growth to date in 2018 (1.3%), it is estimated that the sector will add 600 jobs in 2018 to reach 48,700 positions.

**MEDIAN PAY**

Given the high levels of poverty in Riverside and San Bernardino Counties (14.5% of all people, 19.3% of those under 18), it is important to find sectors that offer workers median incomes at middle class levels provided their families have a secondary wage earner in a lower paying sector. The data show that this is possible in several sectors due to their median pay levels over $45,000, their minimal educational requirement for large shares of the workers, and their growth potential. Looking at the economic base sectors and one related to them, the following is the situation:

- **Logistics** (2018 median pay: $47,946). In 2017, 78.4% of workers were in jobs requiring high school or less schooling. The sector is the fastest growing in the inland area.
- **Construction** (2018 median pay: $54,800). In 2017, 82.2% of workers were in jobs requiring minimal levels of formal education, though apprenticeship is necessary for some types of work. The sector has become the second fastest growing in the inland area though firms continue having trouble finding workers.
- **Health Care** (2018 median pay: $63,409). In 2017, 33.7% of workers were in jobs with minimal educational requirements. The sector has provided significant upward mobility for those with associate's degrees or post-secondary training (30.2%). Those obtaining technical certifications are able to find good jobs and increasing their ability to move up within the sector.
- **Manufacturing** (2018 median pay $53,205). In 2017, the sector offers little job growth. However, industry leaders indicate that a large share of existing technicians are starting to retire. Of workers in the sector in 2017, 66.5% needed high school or less training.
- **Professional, Management & Scientific** (2018 median pay $76,202). In 2017, a relatively small share of workers were in jobs for marginally educated workers (34.5%). However, another 9.2% can step up to better paying jobs with associate's degrees or post-secondary training.
- **Finance, Insurance & Real Estate** (2018 median pay: $50,719) will grow as the real estate market recovers. In the sector, 65.6% of workers during 2017 were in jobs requiring minimal entry-level educations though many require specific state certifications. Its growth is dependent on more home sales and construction activity.

Growth in these sectors for 2018 is anticipated to cause the inland economy to add a total of 49,453 jobs in 2018 or 3.4%, which is the fastest among major California metropolitan areas.

**OUTLOOK**

The need for change in the economy is underscored by the fact that when inflation is taken into account, the estimated 2017 median household income ($66,523) in Riverside and San Bernardino Counties has only exceeded its 1990 level by 1.5%. Per capita income has fared better in that period. It is up 6.1% from 1990-2016. However, that measure is pulled higher by the small share of people with high incomes. That fact is seen by the imbalance in income distribution. Thus in 2017, the 12.5% of households making over $150,000 a year captured 32.98% of all income. The 16.1% of households receiving $100,000-$149,999 a year earned 25.3% of the region's income. These two groups together constituted 28.5% of households, but had 58.2% of the inland area's income. In contrast, the 40.4% of households earning below $50,000 received only a 13.4% share of the area's income.

# Economics & Politics, Inc.

P.O. Box 8730
Redlands, CA 92375
(909) 307-9444 Phone
john@johnhusing.com
www.johnhusing.com

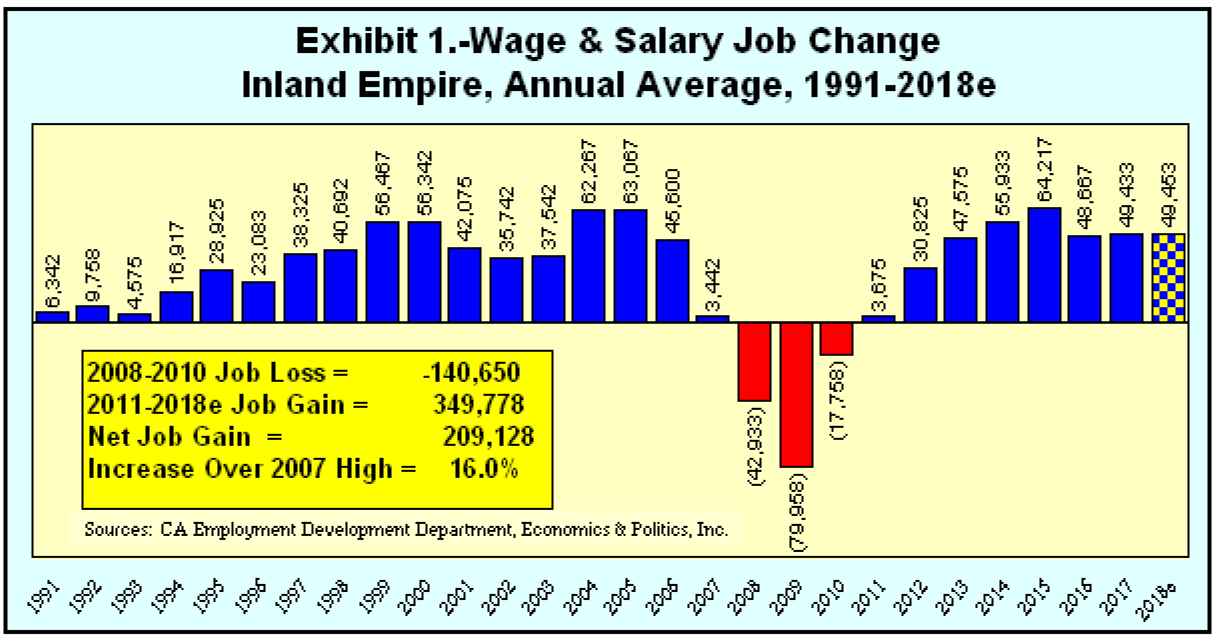
## 2018 Detailed Status of the Riverside and San Bernardino Economies

**John E. Husing, Ph.D.**

## I. Economic Recovery

### A. Forecast & Justification

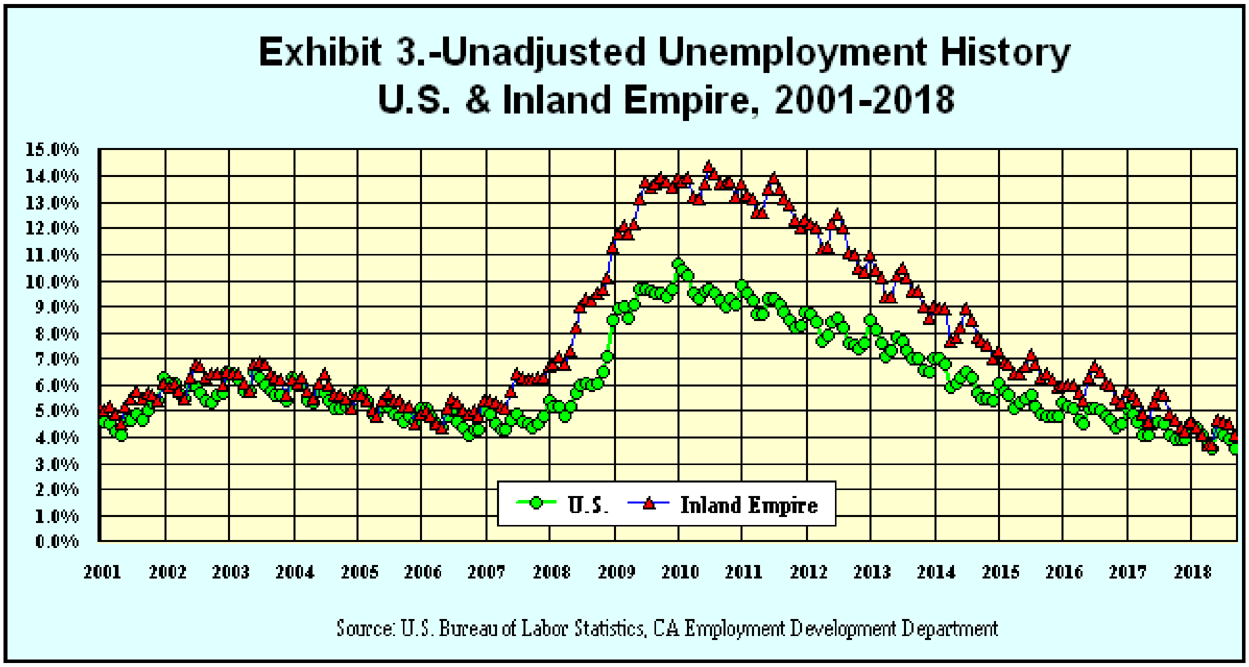
In 2018, Riverside and San Bernardino Counties are on-track through September to reach 1,515,469 jobs and exceed its pre-recession employment level by 209,128 positions based on data from the California Employment Development Department (EDD). This includes a 2018 gain of 49,453 based on the growth rate through September. Assuming EDD's data is accurate for 2018, the inland economy is up 349,778 jobs from 2011-2018, well over the 140,650 positions lost from 2008-2010. The 2018 growth rate appears on track to be 3.4% (Exhibit 1).



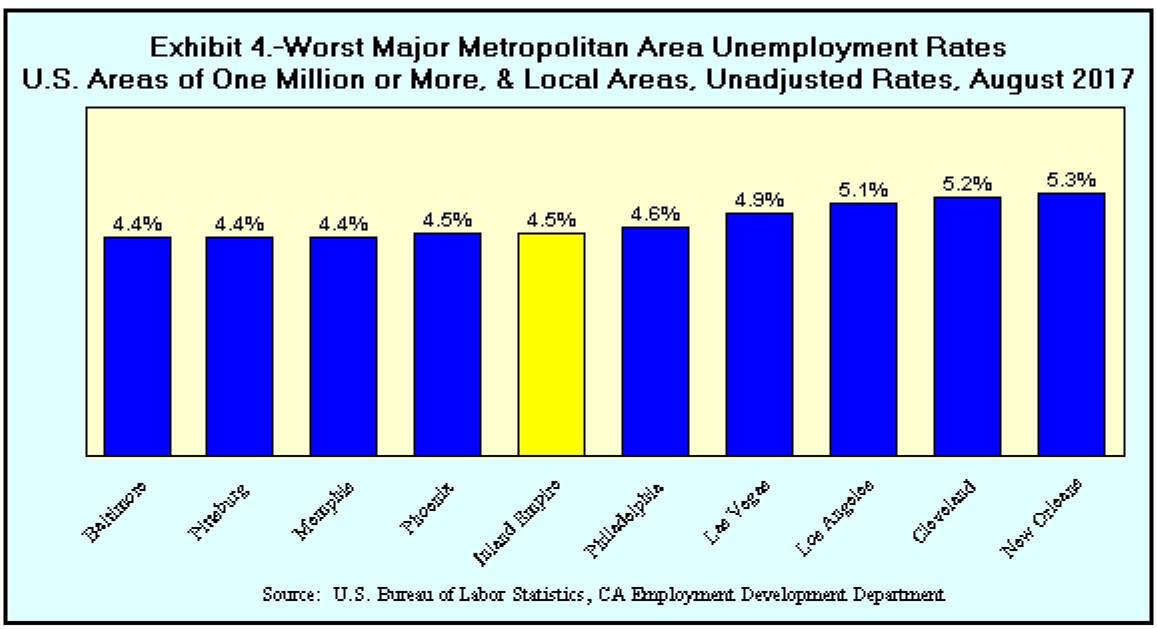

Some caution must be exercised about the EDD's job estimates for 2018 since they are lower than the U.S. Bureau of Labor Statistics' (BLS) estimates, which are based on a more thorough access to employment data. From March 2017-2018, the EDD had Riverside and San Bernardino Counties non-agricultural growth at 48,900 jobs (3.40%) while the BLS had it at 51,516 jobs (3.61%) (Exhibit 2). Ultimately, the EDD's data must be revised to conform to BLS information in March 2019.

| Exhibit 2.-Non-Agriculatural Job Gains, Inland Empire, March 2017-2018 | | | | |
|---|---|---|---|---|
| Agency | March 2017 | March. 2018 | Change | Percent |
| U.S. Bureau of Labor Statistics | 1,425,659 | 1,477,175 | 51,516 | 3.61% |
| EDD-Non-Agricultural | 1,438,200 | 1,487,100 | 48,900 | 3.40% |

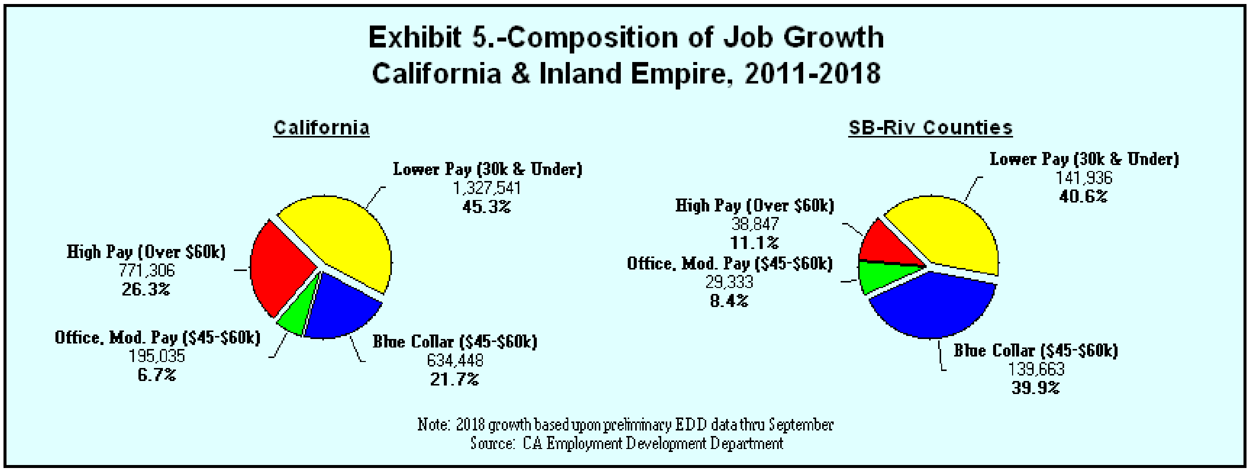
Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics




Meanwhile, the unadjusted unemployment rate in Riverside and San Bernardino Counties has been falling. The September 2018 figure of 4.1% was the lowest for that month in at least 38 years. The area's high for the month was 14.1% in August 2010 (Exhibit 3). The latest figure, however, was a little above the unadjusted levels for California (3.9%) and the U.S. (3.6%). The area's 4.5% rate in August 2017 was the sixth highest among U.S. metropolitan areas of one million or more people tied with Phoenix and below nearby markets like Las Vegas (4.9%) and Los Angeles (5.1%) (Exhibit 4).



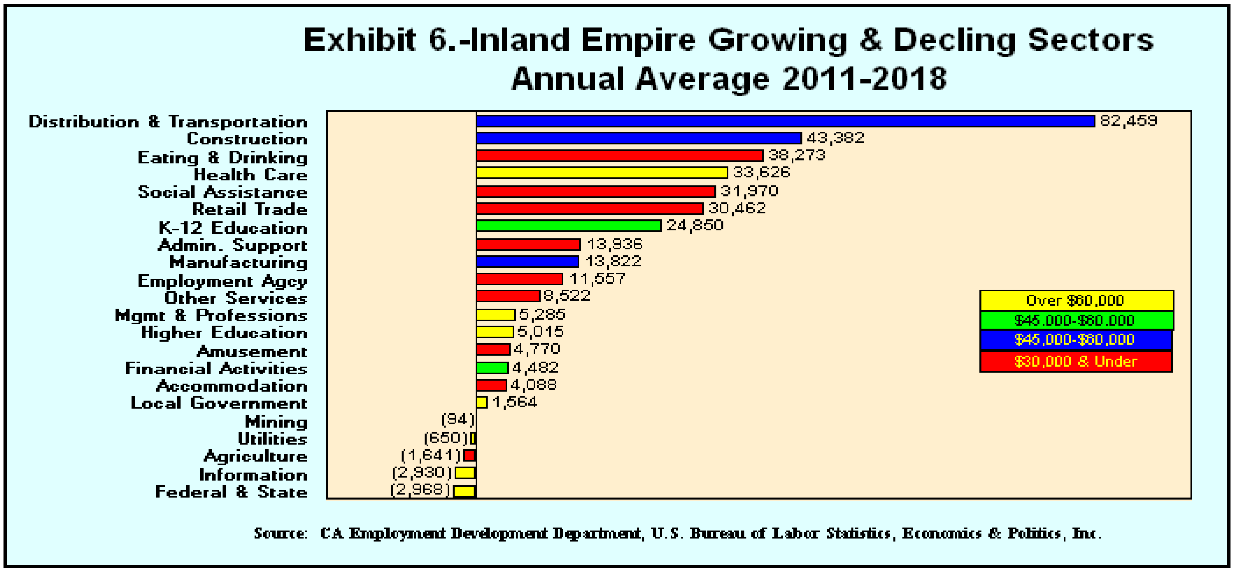

Job quality has historically been the subject of a great deal of discussion in the inland area. A comparison of the area's job growth versus California from 2011-2018 in sectors with varying pay levels produces a surprising result. In the lowest paying sectors (*under $30,000*), the local area saw 40.6% of its job growth (Exhibit 5). That was much less than the 45.3% share in California. In the highest paying group, the local share was 11.1% versus the state's 26.3%. The state's difficulty and the inland strength was in blue collar/technical sectors paying $45,000-$60,000 with a 39.9% local share versus the state's 21.7%. The share in $45,000-$60,000 office-based sectors were 6.7% v. 8.4%. These data highlight the state's problem in seeing its blue collar/technical sector routes to the middle class being cutoff. They also underline the need for more expansion in the higher paying groups in Riverside and San Bernardino Counties.




**B. Economic Challenges To Continuing The Expansion**

For Riverside and San Bernardino Counties, the key to continued expansion will be the growth of the clusters constituting its economic base. Here, the sectors that must grow include logistics, health care, and construction. Manufacturing has weakly joined this group, but suffers due to the high energy costs and heavy regulatory burden faced by that sector in California. The management, professional, engineering, and scientific group should see its role improve as those types of companies seek lower space and labor costs and respond to the stronger educational foundation in those inland sub-areas close to the coastal counties.

All of these sectors are crucial as each one brings money from the outside world into the local market that then recirculates, allowing local population-serving sectors to add to growth. The logistics and manufacturing sectors do so because their customers are largely located throughout the state, country, and world. Health care brings in funds since the sector is largely funded through federal or state programs or by medical insurance companies. Construction does so because projects are funded either by governmental infrastructure grants or private loanable funds flowing to local contractors and workers from the national mortgage market. The management, professional, engineering, and scientific group is a mixed part of the base. Some firms are financed by selling services to the outside world while others indirectly receive outside funds through selling services to those firms. Some of these high-end firms, however, primarily sell services to the local population.



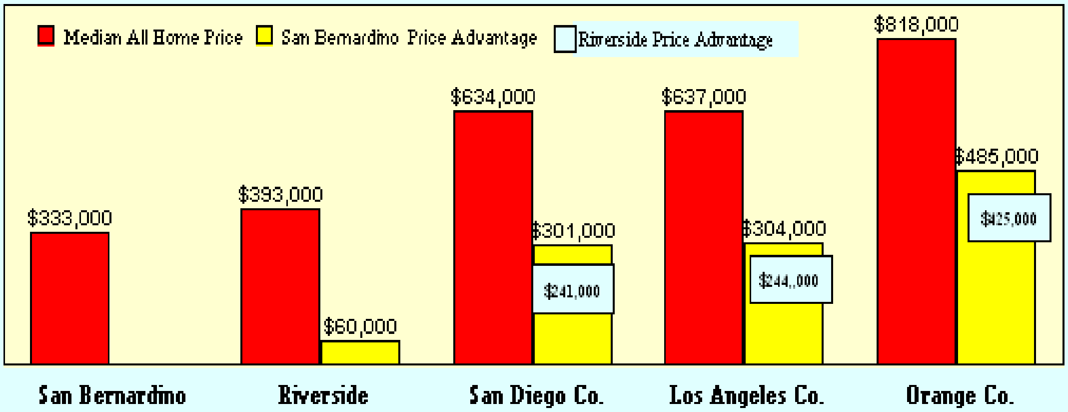

Each of these five sectors faces issues:

1. **Logistics** has been the fastest growing sector in Riverside and San Bernardino Counties and has strong basics. Local activists, however, want to stop its growth and both the California Air Resources Board (ARB) and South Coast Air Quality Management District (SCAQMD) believe it cannot meet its air quality requirements unless the truck traffic associated with the sector is dramatically reduced. A major fight is underway that could conceivably halt the sector's strong continual expansion. From 2011-2018, the data indicate that it has been responsible for 23.6% of direct job growth (82,459 jobs) (Exhibit 6). The sector is adding 12,350 jobs in 2018.

2. **Construction** is the sector that is rising in importance as it moves towards its traditional role of being a major driver of the inland area's growth. The group lost 68,408 jobs from 2006-2011 (-53.7%). During the period covering 2011-2018, it has gained back 43,382 jobs, indicating that the sector is coming back. The EDD estimates that its 2017 growth is on pace to be 6,049 jobs.

   Construction is re-emerging in part due to the lack of housing affordability in the coastal counties that is pricing thousands of families out of those markets. The $333,000 (San Bernardino) and $393,000 (Riverside) median priced homes in the inland area are over $200,000 to over $400,000 less expensive than those in the coastal counties (Exhibit 7). Historically, this will ultimately drive people with all types of incomes and educations to migrate inland for homes or rentals they can afford. To date, the speed at which this is occurring, however, has been blunted by the low Federal Housing Administration (FHA), Fannie Mae, and Freddie Mac conforming loan limit of $405,950 for the inland market compared to $679,650 in the coastal counties. Consumer fears of making large purchases given their experiences in the Great Recession also appears to be a lingering factor.

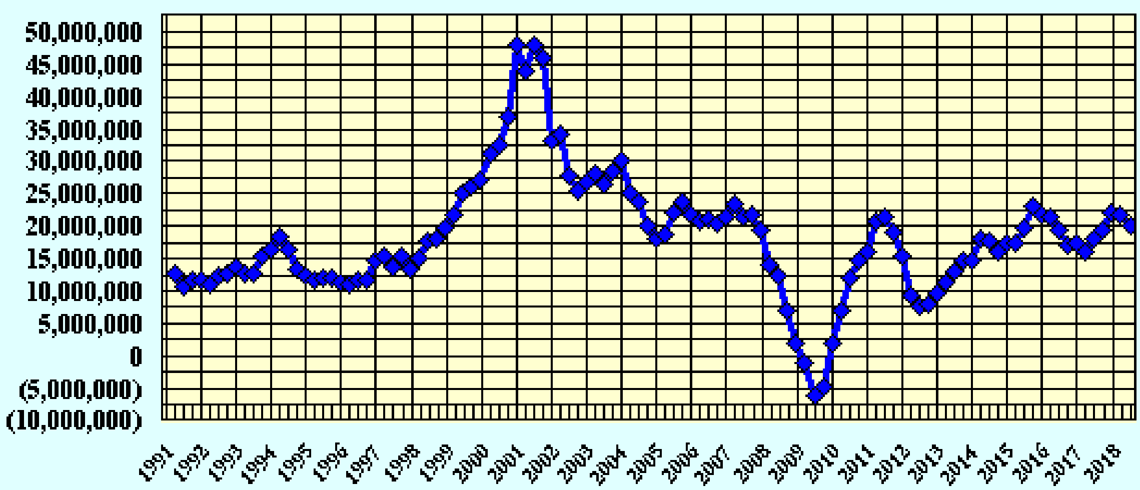
**Exhibit 7.-Home Prices, So. California Markets**
**Median Priced New & Existing Home, 3rd Quarter 2018**




Source: Dataquick

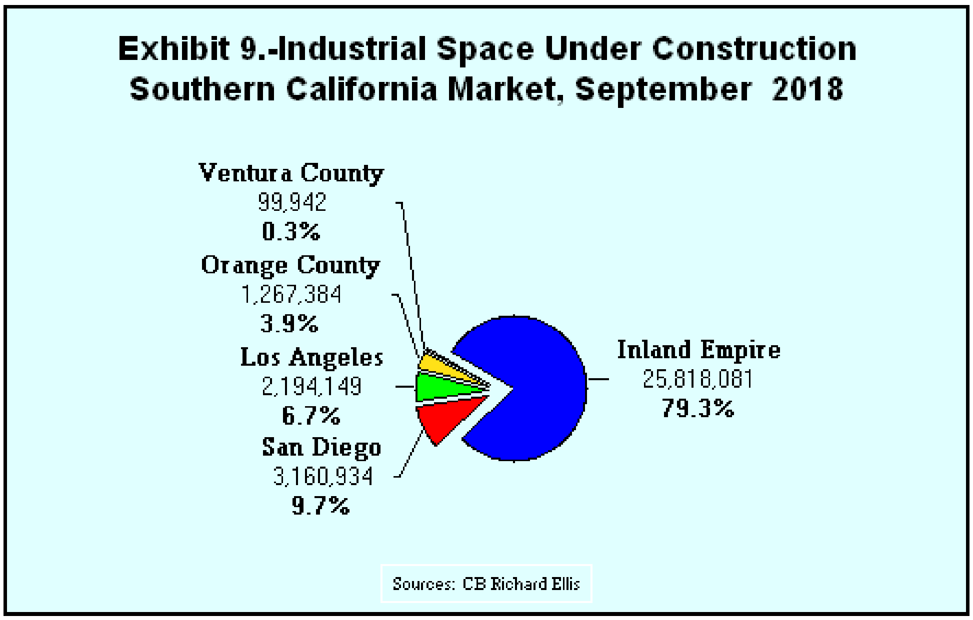
A second reason for construction optimism in Riverside and San Bernardino Counties is the strength of the industrial market where logistics firms occupied a net of 20.2 million square feet of space in the year ended September 2018 (Exhibit 8), while 25.8 million square feet is being built. That means the market is only roughly matching its net absorption. Both those figures are the strongest in the U.S. and the inland area is handling 79.3% of Southern California's industrial construction due to its available land (Exhibit 9). Meanwhile, extensive infrastructure construction is ongoing largely thanks to local transportation sales tax measures.

**Exhibit 8.-Industrial Space Net Absorption**
**Inland Empire Area, 1991-2018 (moving 4-quarter total)**




Source: Grubb & Ellis to 2011, CB Richard Ellis 2012-2018

3. **Health Care** is the one inland sector that grew throughout the recession. There is a huge need for this to continue since each local health care worker already handles 25.8% more people than the state average (Exhibit 18). Also, the sector is seeing a major increase in demand as the share of people without health insurance fell from 28.8% in 2012 to 11.3% in 2016. Still, there were 302,141 non-institutionalized adults without insurance. From 2011-2018, the data indicate that it has been responsible for 9.6% of direct job growth (33,626). The key for the health care system's job growth will likely be the ability of educational institutions to gear up to handle the volume of training that its growth will require in both professional and technical occupations. Also, management has the complexity of dealing with the sector's new dynamics under the Affordable Care Act and the inability of the President and Congress to decide what to do with it.




4. **Manufacturing** should be a major growing sector in Riverside and San Bernardino Counties as both space and labor costs are below other Southern California areas. This is particularly true given the recent resurgence in manufacturing employment nationally. Local firms are tending to increase efficiency, however, rather than hire workers because California's regulatory policies have pushed energy levels far beyond what competitors pay in other states. That fact, plus regulatory costs and delays, means firms must save on labor to maintain their profitability. Here, a key finding is that on a seasonally adjusted basis, California only created 57,300 jobs from January of 2010 to August 2018 (4.6% growth rate) while the U.S. added 1,126,000 (9.7% rate). The state saw just 5.5% of new U.S. manufacturing jobs (Exhibit 10). Still, the Inland Empire has added 13,822 jobs in the sector from 2011-2018 (4.0% share). That includes the estimated of just 322 positions (0.3% share) in 2018, as the sector's expansion as essentially stopped.

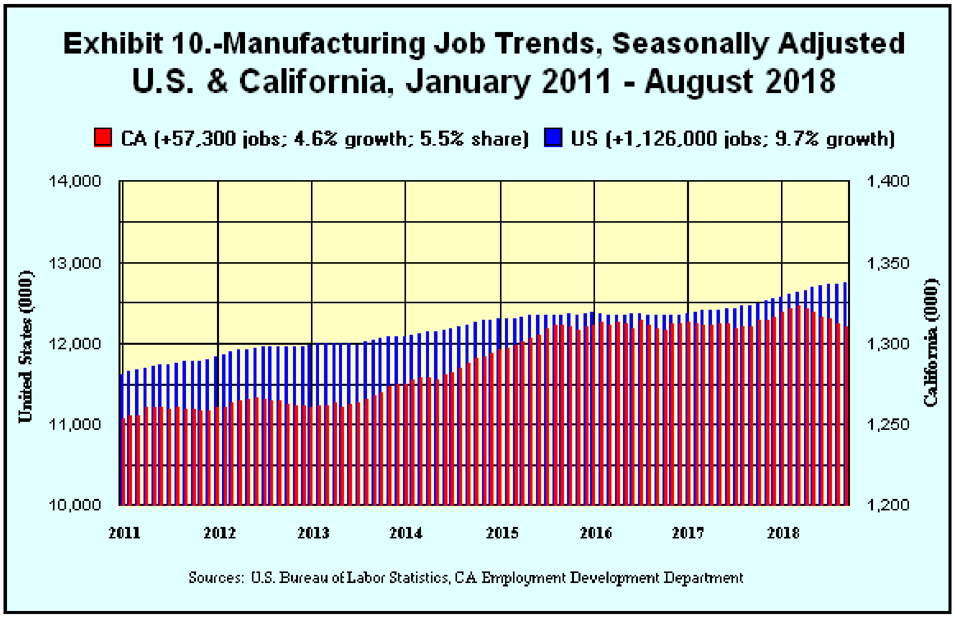



**Exhibit 10.-Manufacturing Job Trends, Seasonally Adjusted U.S. & California, January 2011 - August 2018**

Sources: U.S. Bureau of Labor Statistics, CA Employment Development Department

5. **Professional, Management & Scientific** sectors have been the missing link in the inland area's job growth. However, they are showing a little life. From 2011-2018, the group added 5,285 jobs (1.5% share). Several phenomena offer potential for this group. First is the migration of better educated people to three parts of the area: Cities west of Interstate 15 near Los Angeles and Orange Counties (blue); cities near San Diego County (green); and the Redlands-Loma Linda area (yellow). In these areas, the inland cities are competitive with the coastal counties (striped) (Exhibit 11).

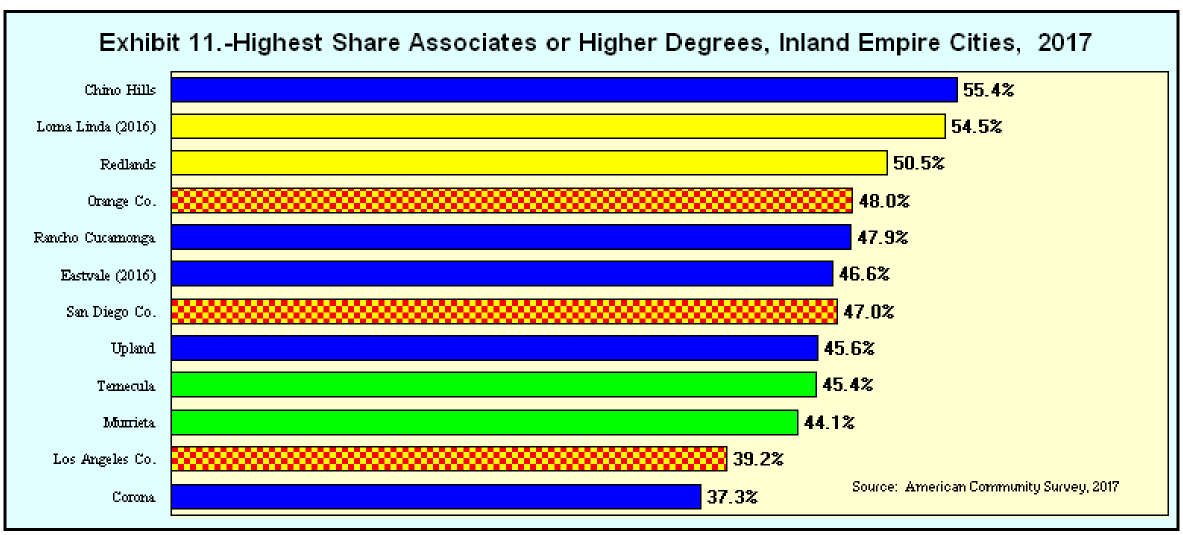



**Exhibit 11.-Highest Share Associates or Higher Degrees, Inland Empire Cities, 2017**

Source: American Community Survey, 2017

Second is the sheer size of the market of Riverside and San Bernardino Counties with 4.56 million people (larger than 25 states) and 114,691 companies that require professional services. Third is the existence of some strategic and successful high-end companies including Bourns (product engineering), SigmaNet (management software), Abbot Cardiovascular Systems (bio-med), Sorenson Engineering (micro-parts manufacturing), Watson Pharmaceutical (generic drugs), ESRI (geographic information systems), and Kelly

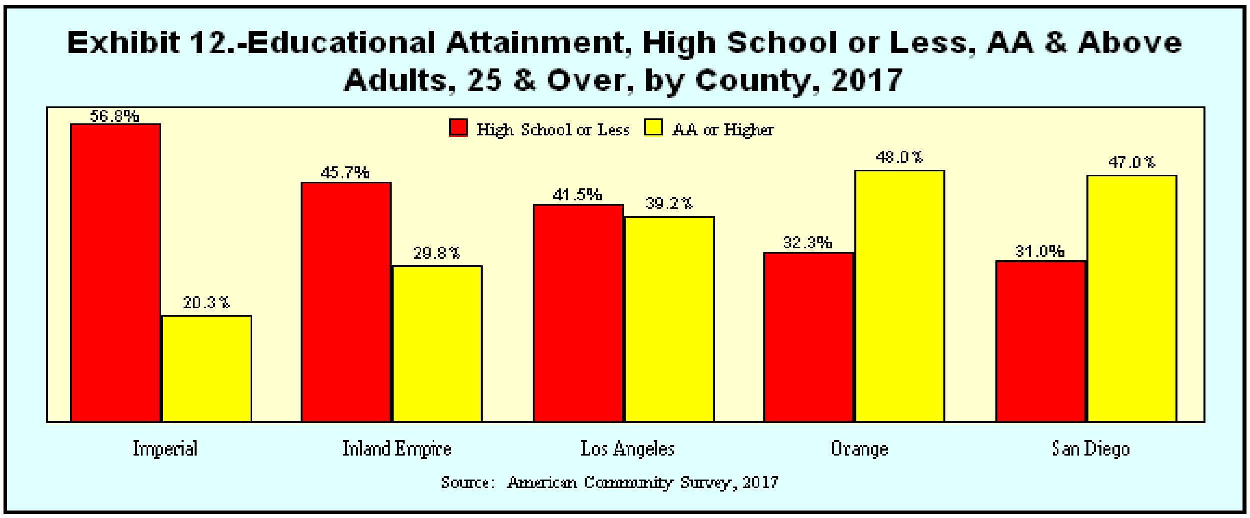
Space & Technology (aerospace). Fourth is the reemergence of the construction sector that requires engineers and other professionals to support it.

Today, the main challenges for this group have been the overall low level of educated workers in the inland area and the slow recovery of residential construction.

**C. Public Health Challenges To Prosperity in Riverside and San Bernardino Counties**

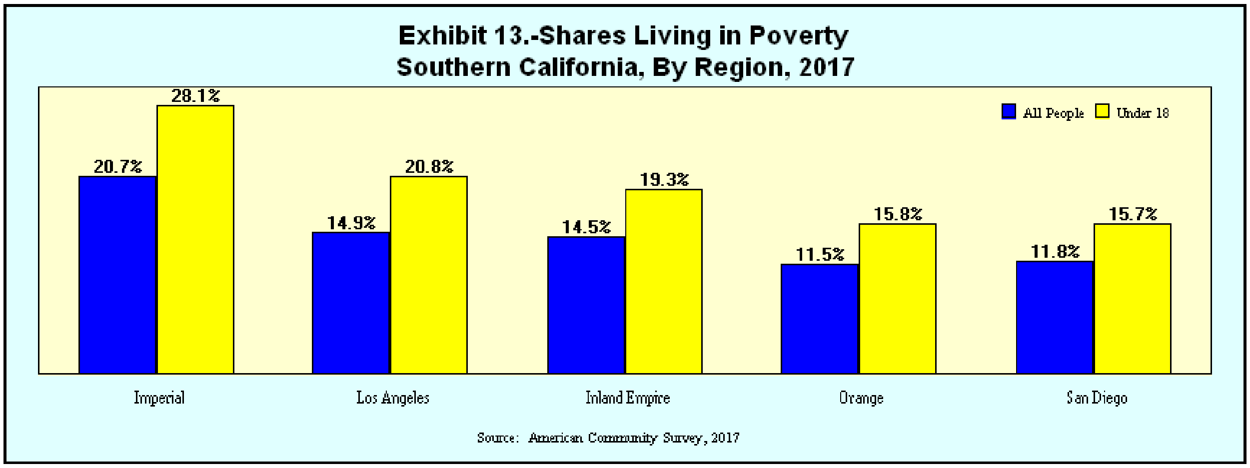
Two other key public health issues impact the ability for Riverside and San Bernardino Counties to attain prosperity. These are the degree to which the region's population is marginally educated and the level of poverty affecting its residents.

According to the U.S. Census Bureau in 2017, 45.7% of the population in Riverside and San Bernardino Counties had stopped their educations with high school or less schooling (Exhibit 12). The situation has improved as the share was 50% of the population in 2000. These data mean that the kinds of firms interested in locating in the inland area, however, tend to be those not needing well educated workers.




For Riverside and San Bernardino Counties, the degree to which it is uncompetitive for firms requiring educated workers is seen in that just 29.8% of adults had associate's degrees or higher. These 2017 figures contrast with 39.2% in Los Angeles County, 47.0% in San Diego County, and 48.0% in Orange County.

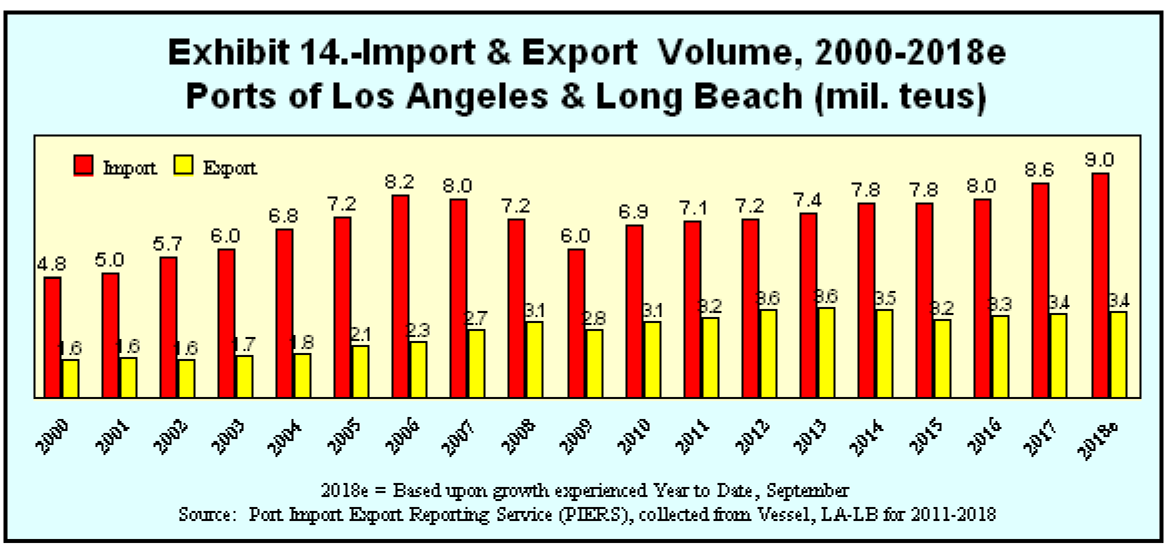
Unfortunately, a marginally educated population tends to correlate with high levels of poverty given the direction that technology is taking good paying jobs in the 21st century. Thus in 2017, the share of inland area residents living in poverty was 14.5% (Exhibit 13). Among adjacent counties, the shares were 14.9% in Los Angeles, 11.8% in San Diego, and 11.5% in Orange. Imperial was worse (20.7%). Meanwhile, nearly 1-in-5 inland area children under 18 were impoverished (19.3%). That compared to 20.8% in Los Angeles, 15.8% in Orange, and 15.7% in San Diego. Poverty also has an ethnic dimension. By group (not shown), those Inland Empire residents living in poverty were: African American (19.5%), Hispanic (16.8%), Asian (11.7%), and White (9.8%). While all of these numbers have improved since 2016, these facts create difficulties for the inland area's quality of life. In particular, given the importance of children to the region's future labor force, the levels of childhood poverty represent a major barrier to the region's long-term success.




## II. <u>Key Growth Industries More Thoroughly Discussed</u>

### A. Key Existing Industries

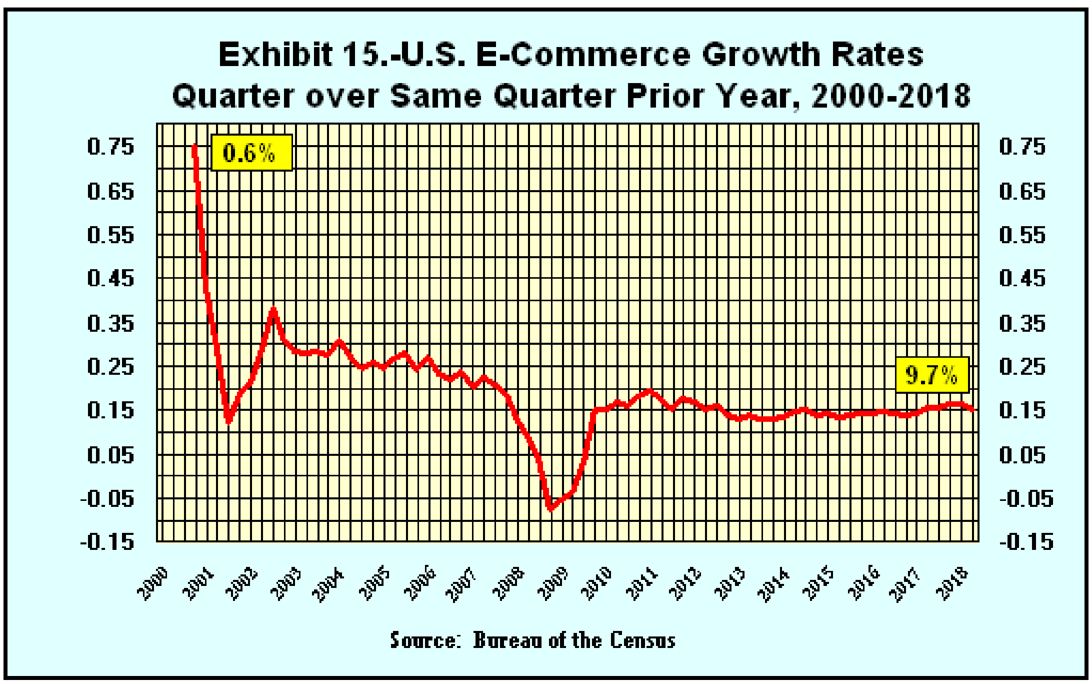
- **<u>Logistics</u>:** The Inland Empire's logistics industry is driven by two major forces:
  - **International Trade:** The volume of international trade moving through both the Ports of Los Angeles and Long Beach has been the sector's traditional driver (Exhibit 14). On the import side, loaded containers entering the U.S. soared to 8.2 million twenty foot container units (TEUs) in 2006. The volume declined roughly 25% to 6.0 million TEUs in 2009 due to the Great Recession. It has subsequently recovered and is on track as of September 2018 to reach a record 9.0 million TEUs for the year.




Exported load containers are less of an economic driver for Riverside and San Bernardino Counties. They reached a record 3.6 million TEUs in 2012-2013, fell to 3.2 million TEUs in 2015, but are headed to 3.4 million TEUs in 2018. The high value of the U.S. dollar is making American exports more expensive to the rest of the world. Exports are an activity that will likely have an important future role for the inland area as immigrant manufacturers choose to locate near the ports and because of the importance of exports to the Coachella Valley's farmers. Meanwhile, President Trump's tariffs may harm imports by raising their costs to consumers and parts buyers. Agricultural exports are, so far, being adversely impacted by the Chinese reaction to his policies.

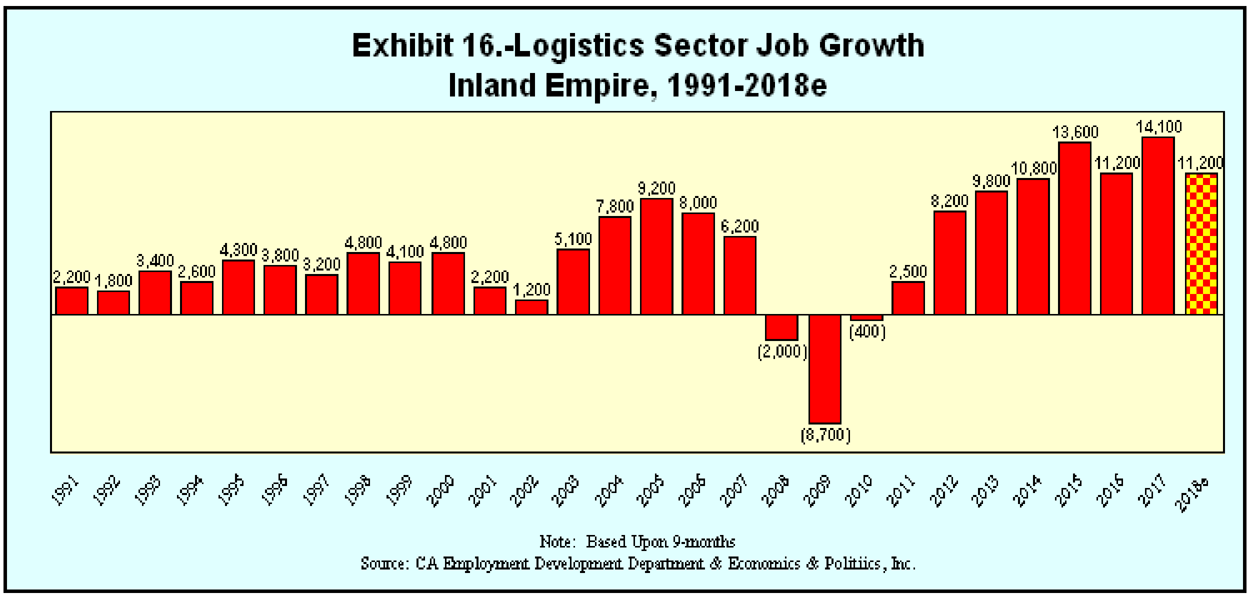
The facilities for handling this type of activity for international supply chain work are getting larger and larger due to the technology.

- **Fulfillment Centers:** The newest phenomenon impacting the logistics sector in Riverside and San Bernardino Counties is the entry of fulfillment centers into California. These facilities are being developed for retailers so they can respond to the increasing use of the e-commerce by consumers. The goal is 24-hour delivery. They are generally 750,000 to over 1,000,000 square feet in size and use from 750 to 1,250 square feet per job since the work is more labor intensive. That is roughly the land use ratios found with manufacturing. This is a long term growth factor for the region given that e-commerce is growing at roughly 15-16% compounded per year. Nationally, these facilities have gone from 0.6% of retail sales in 2000 to 9.7% in the second quarter of 2018 (Exhibit 15).



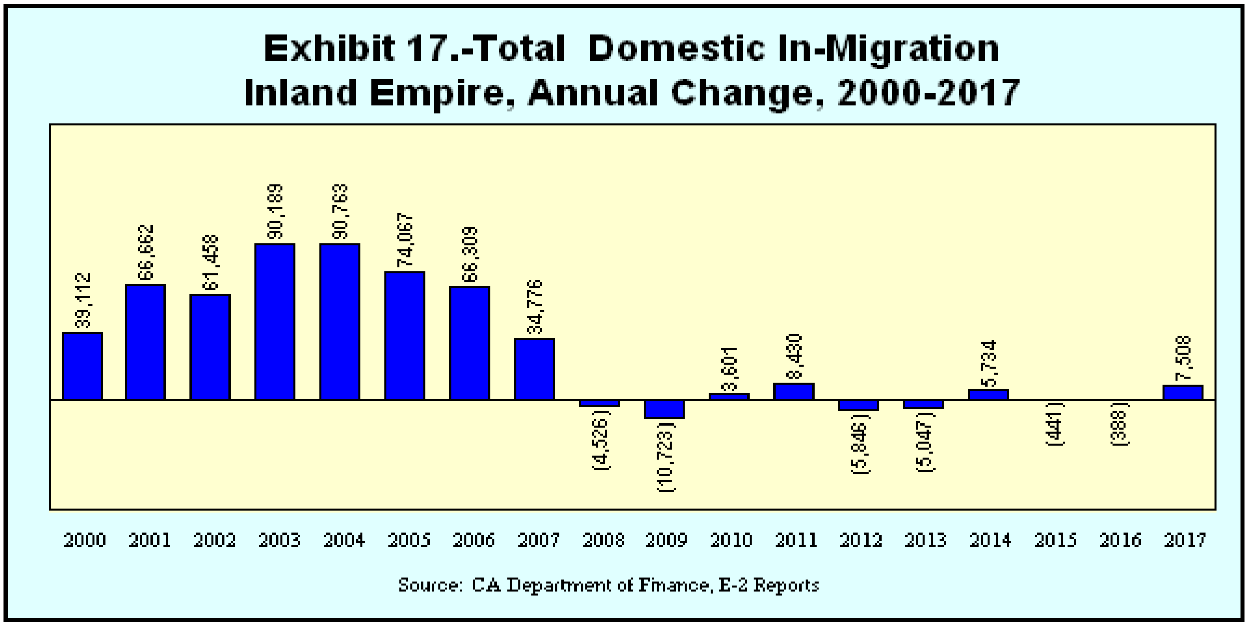

Another aspect of fulfillment centers is the impact they are having on conventional retail sales centers since their sales volumes and city sales tax collections have been falling. As most of the centers are part of national organizations with multiple sites in California, their retail sales tax collections go to the state for distribution by formula to all of the state's cities. Host cities thus do not particularly benefit on a sales tax basis from having one in their community. A city does benefit if they are in the rare situation of having the sole California location for such an operation.

- **Forecast:** At the 6.9% growth rate through September 2018, the logistics sector in Riverside and San Bernardino Counties is likely to create another 11,200 jobs in 2018 to reach 190,100 (Exhibit 16). To date, there appears to be no economic reason for its growth to be seriously imperiled for the foreseeable future. That is particularly true given that most of Southern California's available industrially zoned land is located in the inland area.
- **Caution:** That said, both ARB and SCAQMD are discussing an "indirect source rule" whereby new logistics facilities would be charged fees based upon the truck traffic they "lure" to the Inland Empire. If successful, their attempt to become part of local planning decisions could slow the sector's inland growth. Another potential difficulty is the new Panama Canal, which will have an indeterminate impact on goods arriving at both the Ports of Los Angeles and Long Beach. That is being offset to an extent by the huge size of new ships of 14,000 TEUs and above that cannot go through the new canal. Their size, however, is straining the ability of the ports to unload them. In addition, to date, cargo has not been loaded on them in a logical way in Asia to permit easy unloading and movement away from the ports, straining their throughput capacity.



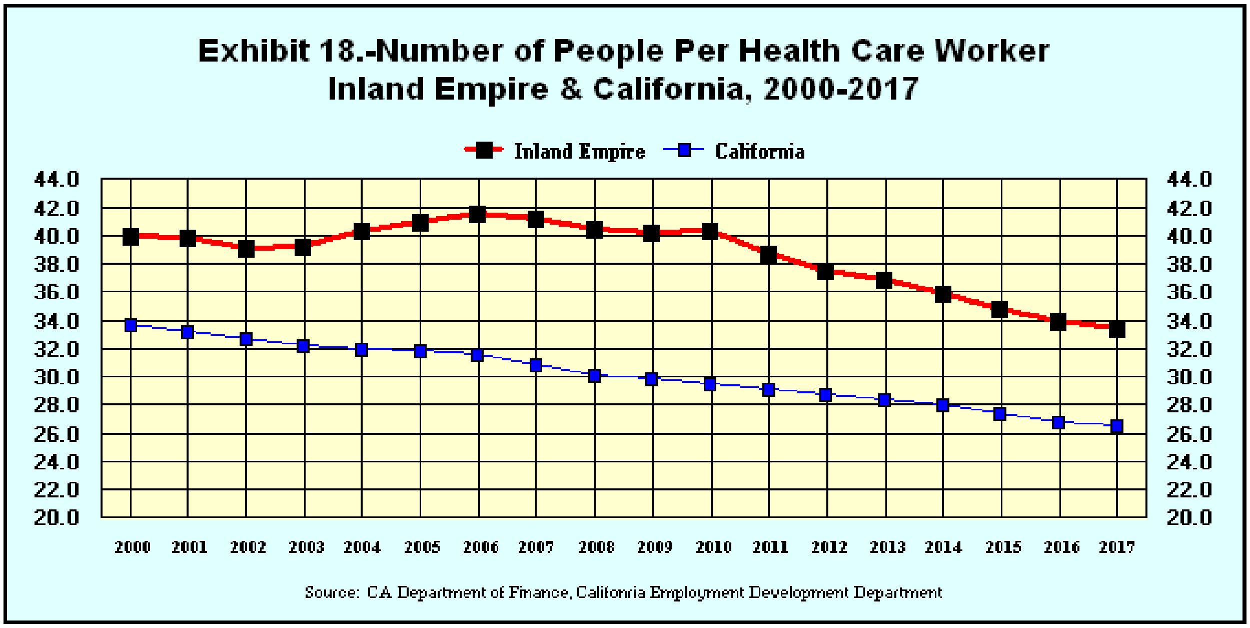

- <u>**Health Care**</u>**:** Four factors will drive the demand for health care in Riverside and San Bernardino Counties and the sector's resulting employment level:
  - **Population Growth:** For the past few years, the recession has restrained residential development and therefore population growth in the inland area. From 2000 through 2006, the inland counties added over 100,000 people per year with domestic in-migration responsible for over 60,000 new residents. First soaring home prices, and then the Great Recession, changed this picture, slowing annual growth to an average of about 40,000 people per year with domestic net migration essentially staying just below zero (Exhibit 17).

This is poised to change with the acceleration in the recovery of Southern California's economy. Also as stated, the declining shares of families in Los Angeles (26%), San Diego County (22%) and Orange County (20%) Counties who can still afford a local home in their counties has fallen far more than the 41% who can do so in Riverside and San Bernardino Counties. As more aggressive population expansion in the inland area resumes, the demand for health professionals will rise. Contributing to this phenomenon is the fact that the California legislature has so far been unwilling to amend the California Environmental Quality Act (CEQA), which is being used by "not in my backyard" opponents to development (NIMBYs) in the coastal counties to nearly stop the construction of homes that the workforce population in those area can afford.

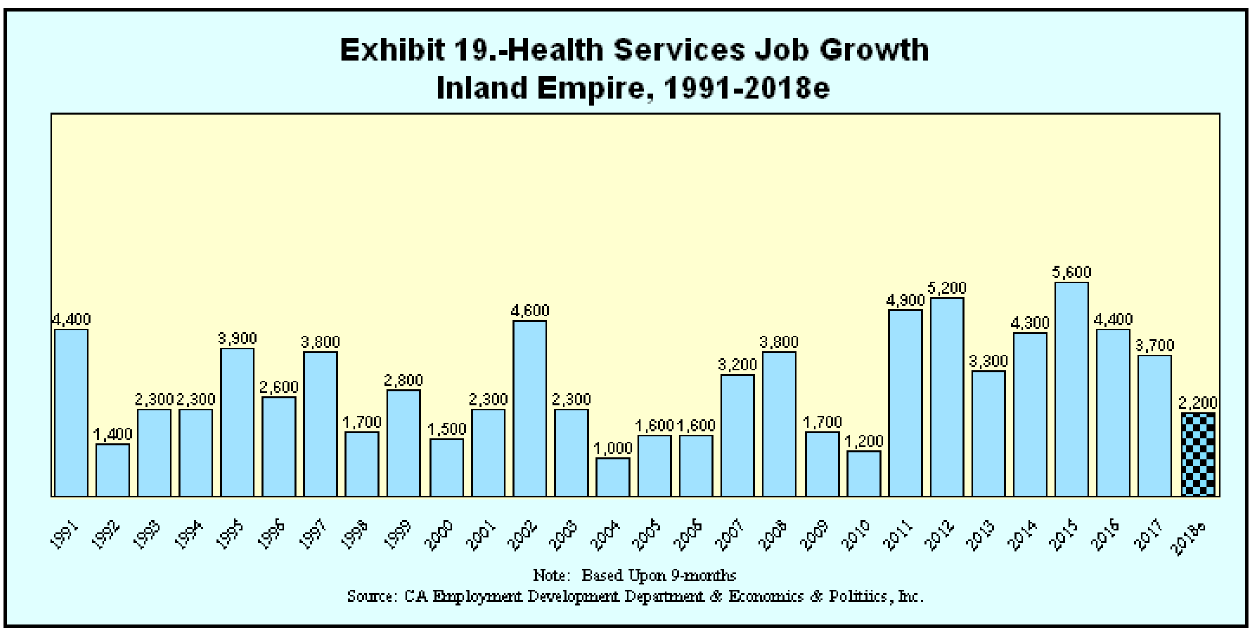



- **Affordable Care Act:** In 2012, the U.S. Census Bureau's American Community Survey (ACS) found that 28.8% or 750,957 of Riverside and San Bernardino Counties' non-institutionalized adults had no health insurance. The 2017 ACS estimates that those figures were down to 11.3% and 302,141. That was a reduction of 448,816 adults or 59.8%. This represents a substantial increase in demand for health care services. The sector's employment has not adjusted as rapidly in part because local out-patient and in-patient care facilities are still working through the process of how to gear up for the increase in demand. Executives in the sector have also been cautious in hiring given the constant attacks on the ACA in Washington DC.

- **Health Care Workers Per Capita:** While demand for health care and the number of workers is rising in the inland counties, the region remains underserved. In 2017, there were 26.8 people for each health care worker in California (Exhibit 18). In Riverside and San Bernardino Counties, it was 33.4. The region thus had 25.8% more people for each health care worker. The good news is that in 2010, there were 36.3% more people per worker than the state, so the situation is improving. In terms of physicians per 100,000 people in 2015, San Bernardino County ranked 39th of 58 counties for primary care physicians while Riverside County ranked 49th. In terms of specialty doctors, San Bernardino County ranked 34th of 58 counties for primary care physicians while Riverside County ranked 41st (not shown).

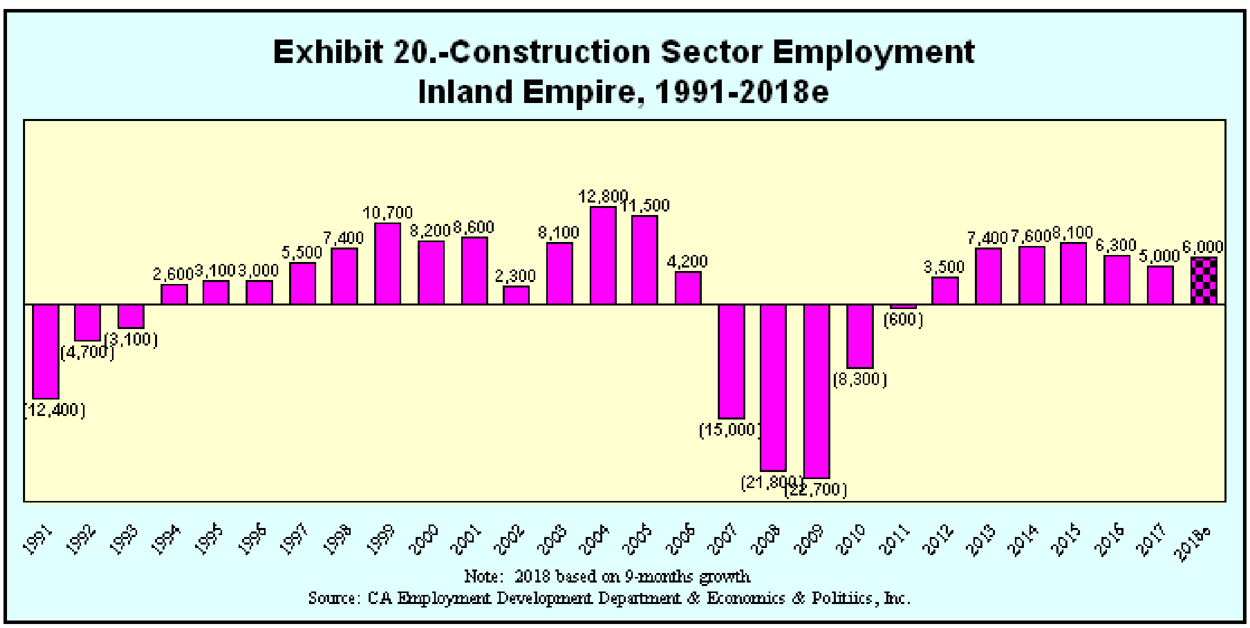



- **Aging Population:** In 2017, there were 1,102,092 people aged 55 and over in the inland area. They constituted 24.1% of its population. In 2016, this was 1,073,526 and 23.7%. Many in this group are already in ages that disproportionately use medical care including assisted living facilities. The number is set to grow as the baby boomers in this group continue aging.



- **Forecast:** The health care sector in Riverside and San Bernardino Counties was unique in growing straight through the Great Recession. In 2017, the sector maintained that record adding 3,700 jobs (2.8%) to reach 136,000. For 2018, the area is on track to add only another 2,200 positions (1.6%) to total 138,200 (Exhibit 19). The immediate issue is the fact that health care executives are being conservative in their hiring because they are unsure of their future revenues given that the President and Congress continue discussing the elimination of the Affordable Care Act.

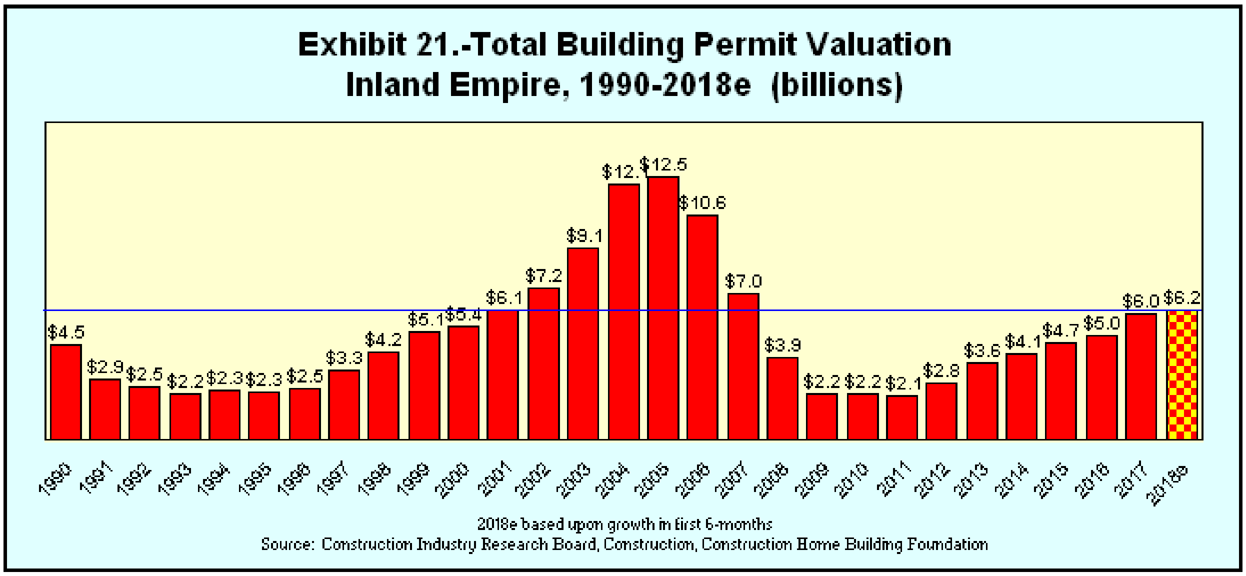
- **Caution:** The key worry for health care providers is the lack of a training pipeline to give them the staffing they will need to keep up with the potential for rapidly expanding demand. Fortunately, there are two medical schools in Riverside and San Bernardino Counties starting to deal with this imbalance: Loma Linda University Medical Center (non-profit) and University of California Riverside Medical Center (public). Western University of Health Sciences (private) is also located in neighboring Los Angeles County. A fourth, California University of Science and Medicine will be located next to Arrowhead Medical Center in San Bernardino County. It is being organized and awaiting accreditation. Loma Linda has also opened its San Manuel training facility to help entry level workers enter the field. To a large extent, the backbone of the system, however, is found among nurses and a very wide variety of technicians. Here, the difficulty will be the inability of public educational institutions including the community colleges and regional occupational programs to handle the required volume as such training is inordinately expensive for them.



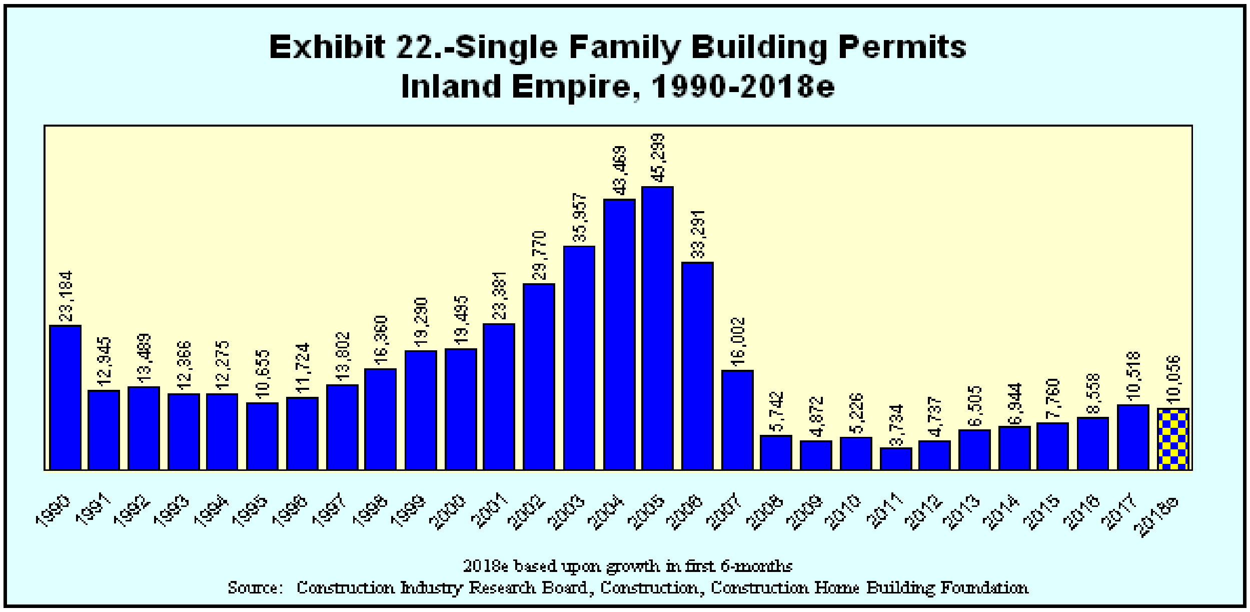

- **Construction:** The lagging recovery link in Riverside and San Bernardino Counties has been residential construction. After peaking at 127,500 workers in 2006, the mortgage crisis sent the construction sector's job level down to 59,100 in 2011. It has since been growing:

- **Forecast:** In 2017, construction firms added 5,000 jobs (5.4%). That brought employment to 97,000. For 2018, growth is on track to reach 6,000 new jobs or a 6.2% growth rate (Exhibit 20). The metrics driving the sector include:

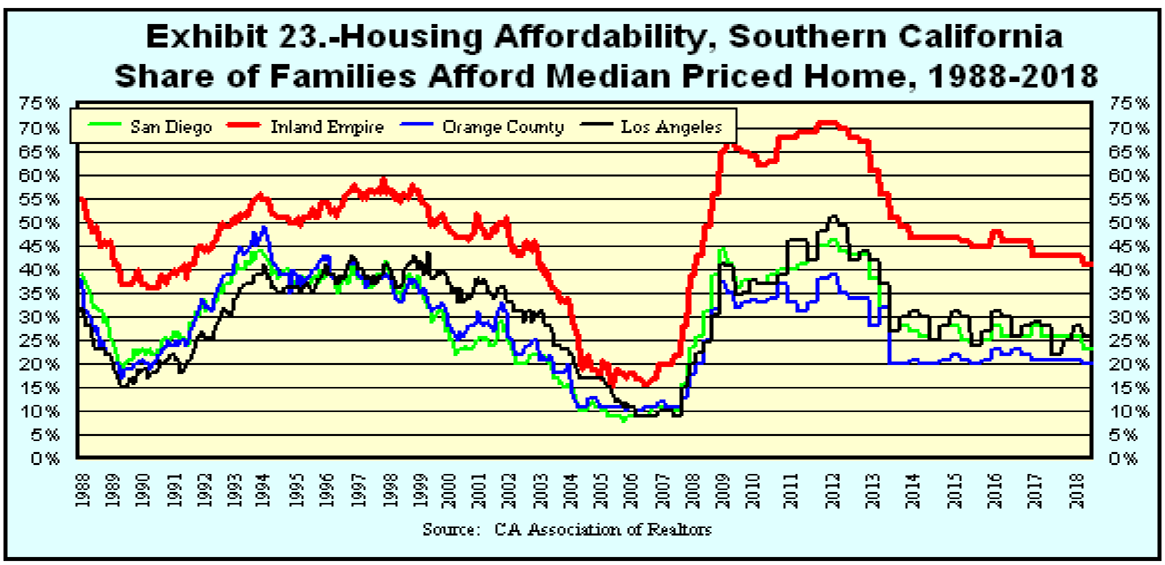
  1. **Permits:** Importantly, the total value of construction permits has begun to increase. From a low of $2.1 billion in 2011, the level reached $4.7 billion, up 13.4%, in 2015. It reached $5.0 billion in 2016, up 7.2%. For 2017, permits increased to $6.0 billion, up a rapid 20.1%. In 2018, permits are on track to reach $ 6.2 billion, up just 3.5% (Exhibit 21). While still low by the standards of the last decade, the direction is positive as some residential projects together with numerous industrial and some retail projects are being started. This does not include the public sector financed infrastructure projects under construction thanks to local tax measures plus federal and state transportation funding.




  2. **Housing:** The major problem for the construction sector has been the very slow recovery in residential activity. The number of single family permits fell from 45,299 in 2005 to 3,734 in 2011. Subsequently, the market has grown to an estimated 10,056 single family detached permits based upon activity in the first six months of 2018. That would be somewhat under the 10,512, in 2017 (Exhibit 22). These are the two best years since the recession, but remain low historically.

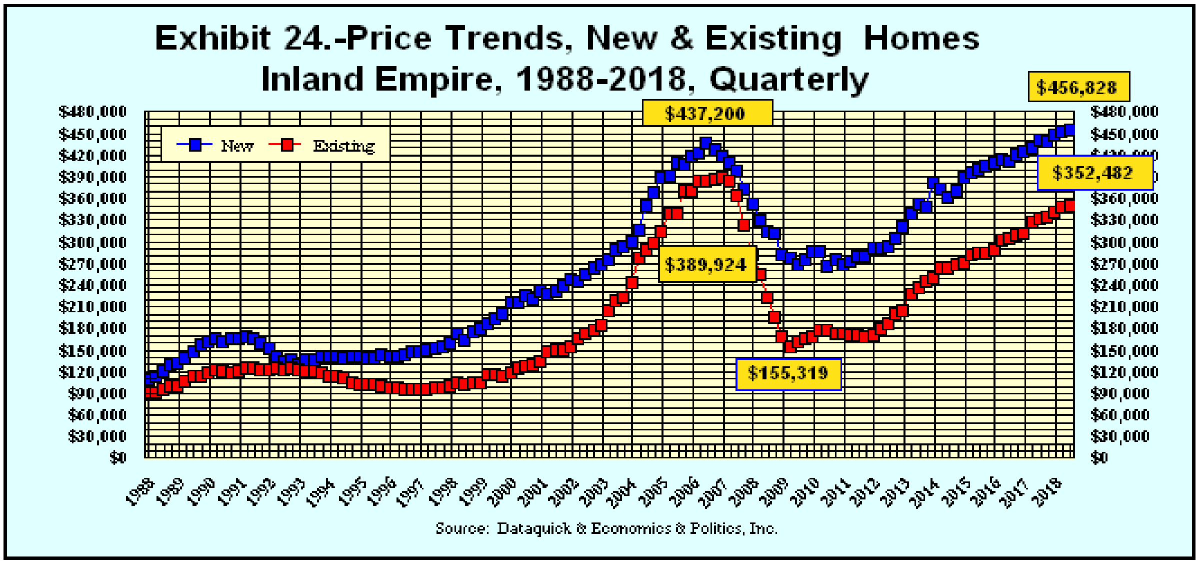



3. **Affordability:** As has been noted several times, the residential markets in Riverside and San Bernardino Counties are a bargain compared to the coastal counties. Affordability for local residents at the area's median income was 41% in second quarter 2018. That compares to Los Angeles (26%), San Diego County (22%) and Orange County (20%) (Exhibit 23). This will tend to drive buyers to the inland area.




4. **Price Recovery:** Very importantly, residential prices in Riverside and San Bernardino Counties have seen a significant recovery since the mortgage meltdown. In the existing home market, the second quarter 2018 median price was $352,482. Though high, that remains 9.6% below the all-time high. The median new home price was at $456,828, which was 4.5% above the pre-recession record (Exhibit 24). A problem for new home construction is the fact that the maximum limit for FHA low down

payment, low interest rate loans is $405,950, well below the median price for new homes. By contrast, that limit is $679,650 in the coastal counties.




5. **Demand Preferences:** An additional fact that will ultimately encourage the detached single family housing market in Riverside and San Bernardino Counties is found in surveys conducted over a five year period by the Western Riverside Council of Governments (WRCOG). They twice interviewed commuters driving from that county to Los Angeles, Orange, and San Diego Counties about their housing preferences. The responses to two questions were quite revealing:

   - *As a homeowner, would you prefer to move closer to work if it involved a townhouse or condo?* **87.5% said NO.**
   - *As a renter, would you prefer to move closer to work if it involved a townhouse or condo?* **72.3% said NO.**

   Further, a 2016 survey by the Demand Institute found that 84% of millennials either already own a home or that is their desire. An FHA survey in 2013 found that 76% of millennials thought that home buying made more sense that renting. A 2016 paper by Dowell Meyers from the University of Southern California found that millennials are now migrating away from central cores to the suburbs to purchase homes:

   > "After more than a decade of growing concentration, we see that the millennial trend of increased downtown living has peaked out and is now beginning a decline.

   There thus appears to be a stronger preference than expected for the kind of single family detached homes for which only the inland area in Southern California has the undeveloped property to accommodate.

6. **Non-Residential Construction:** Non-residential activity (including multi-tenant) has fewer problems than single family housing. Here, the situation is seen in the metrics for several types of activity:

- Industrial vacancy was 3.6% in the third quarter of 2018 and is only that high because construction on several new projects has been completed. Currently, 25.8 million square feet is under construction, the highest level for any U.S. industrial market. As stated earlier, in the most recent four quarters, logistics firms occupied a net of 20.1 million square feet.
- Office vacancy was 9.6% in the third quarter of 2018, down from a recession high of 24.2%. It is still above the low of 7.0% in 2003, however, when construction activity last restarted. Currently, no projects are being built.
- Retail vacancy was 8.5% in the third quarter of 2018. The sector has 621,000 square feet of space under construction in areas of rapid population growth. E-commerce is hurting old retail centers.
- Apartment vacancies were 3.8% in the inland area in June 2017. Tenants paid a record $1,457 per month for apartment units. This segment is building due to the lack of supply in detached homes for sale as well as the inability or unwillingness of many families to obtain home loans.

▪ **Caution:** There continues to be a host of issues facing the rejuvenation of the construction sector in Riverside and San Bernardino Counties. In the residential market, people remain hesitant to commit to new purchases in the inland counties. That will likely change as the very high costs of coastal county homes bars them from investing there. The multitenant market is strong given the increased demand from the large number of families that cannot obtain financing for single family homes.

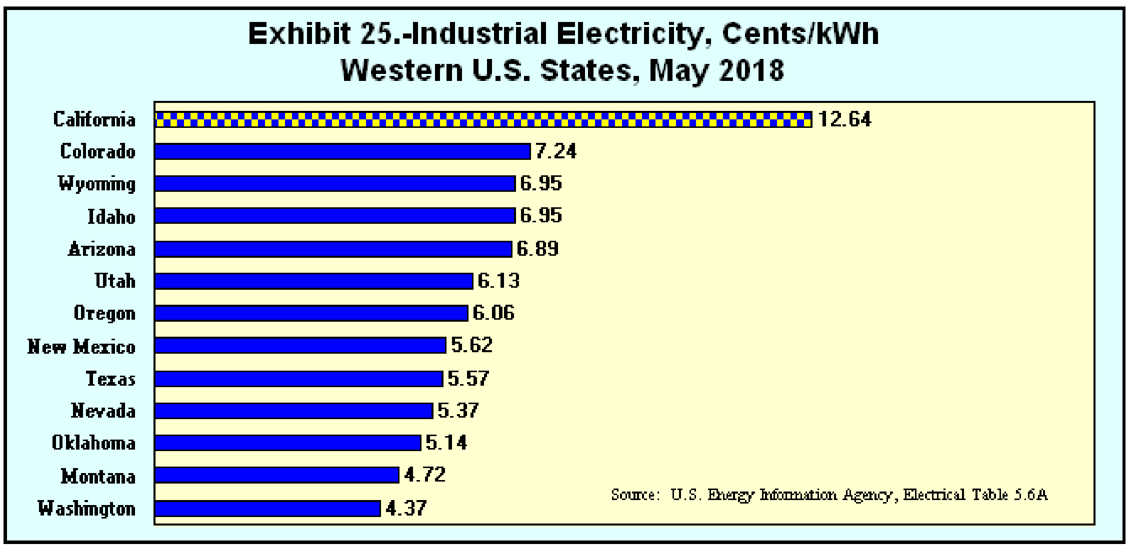
Industrial construction will remain a force given the demand for facilities because of rising international trade with the strong U.S. dollar making imports cheaper, the explosive growth of e-commerce, and the availability of land to handle the large facilities needed by the sector. Public construction should remain strong because both inland counties have passed local sales tax measures for street, road, and transit construction.

Office construction will lag until a resurgence in demand occurs. That will require office based operations that retrenched in the Great Recession to return to the inland area though the use of the internet for numerous former office based transactions will hinder that from occurring. Some retail construction is now underway given that 2017 taxable retail sales in Riverside and San Bernardino Counties reached $74.0 billion and exceeded the 2006 record $61.1 billion by 21.5%. That growth now exceeds the inflation increase of 18.4% between 2006-2017 meaning that the actual volume of goods being sold are above the 2006 inflation adjusted maximum.

- **Manufacturing:** For Riverside and San Bernardino Counties, the manufacturing sector continues to represent a largely missed opportunity. There are three reasons for this:

▪ **National vs. State Manufacturing Growth:** In recent decades, international competition and lower costs in countries like China and India have hurt manufacturing employment in the United States. In addition, a good deal of research indicates that a reason for jobs losses in the sector is due to the domestic adoption of technology that has replaced workers (i.e., automation). From 2010 to mid-2018, a resurgence has been underway in this country. This occurred as some firms have been hurt because the off-shoring of production decreased their quality controls. Also, foreign labor costs have risen, particularly in China, reducing the incentive for American firms to maintain production offshore. In addition, American firms have become much more productive, giving them a competitive edge for goods they sell in this country.

Still, seasonally adjusted manufacturing employment in the United States has risen by 1,126,000 jobs from January 2010 to August 2018, up 9.7%. The sad fact is that California has added just 57,300 jobs in this period, a 4.6% growth rate (Exhibit 10 above). When asked about these data, the California Governor's Office of Business and Economic Development (GO-Biz) responded that despite the lack of job growth, the state's manufacturing output grew rapidly. This begs the question, however, of why it is good to see output rise with minimal benefit to the state's workers.

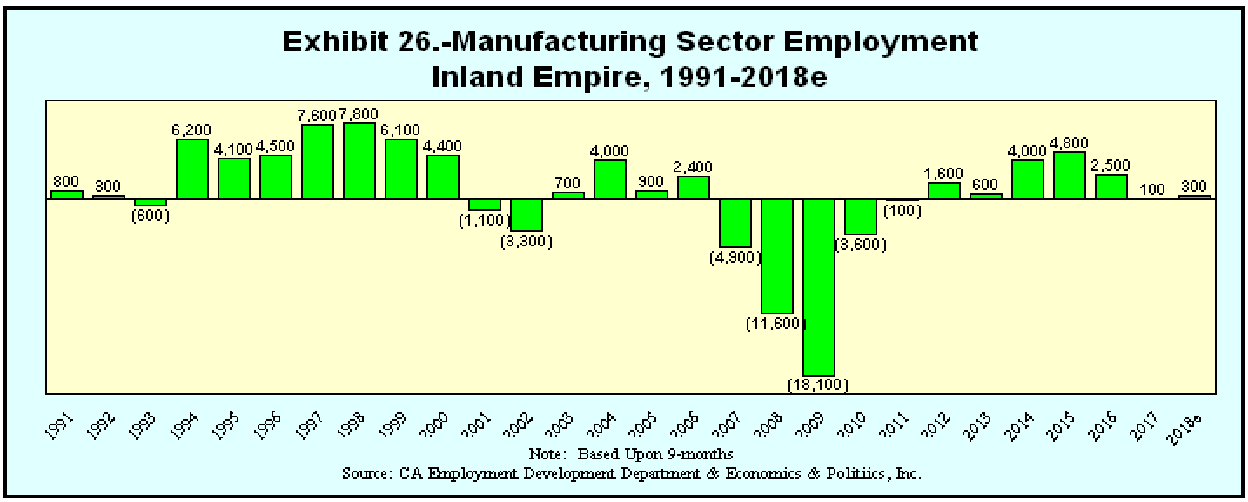



- **Energy Costs:** California has put in place strong policies aimed at increasing the state's use of renewable energy. For manufacturers and their workers, however, this has caused electrical costs to soar, making them uncompetitive versus nearby states (Exhibit 25). Thus, California's average industrial electricity rate was 12.64¢ per kilowatt hour in May 2018. That was 74.6% higher than Colorado (7.24¢), the second most expensive western state. Locally, it was 83.5% above Arizona (6.89¢) and 135.4% more expensive than Nevada (5.37¢). The passage of SB 350 with its mandate of 50% renewables by 2030 will undoubtedly exacerbate this cost disadvantage as will the passage of SB 100 mandating full electrification by 2045.
- **Regulatory Climate:** Meanwhile, Southern California's regulatory climate has negatively impacted its manufacturing sector in several ways. First, because ARB and SCAQMD rules continuously change, it is very difficult for companies in places like the inland area to forecast their cost structures for any realistic time horizon. As firms typically invest while looking at least five years ahead, this inhibits local expansions. Second, firms find they are

often layered with regulatory costs because they must install new pollution control technologies as soon as the agency requires them to do so. Sometimes, this is before they have paid for the last round of required technology.

An example of the uncertainty that SCAQMD injects into the manufacturing process is seen in the agency's declared statement that it must "electrify" the basin to meet its air quality mandates. To manufacturers, this means having to consider having to use electricity even when natural gas, for which Southern California has a far better competitive situation, is available.

- **Forecast:** The prognosis for manufacturing job growth in Riverside and San Bernardino Counties is unfortunately weak. From 2006-2011, the sector had a net loss of 38,300 jobs (31.0%). With the Great Recession over, the sector has slowly grown, adding 13,800 jobs during 2012-2017 taking it to 98,700 workers. This included 2,500 jobs in 2016 (2.6%), but only 100 jobs in 2017 (0.1%). That is still 24,500 jobs or 19.8% below its 2006 pre-recession level of 123,400 jobs. Given that the sector is on track to grow by 0.3% this year, it will only add another 300 jobs in 2018 taking it to 99,000 jobs (Exhibit 26).

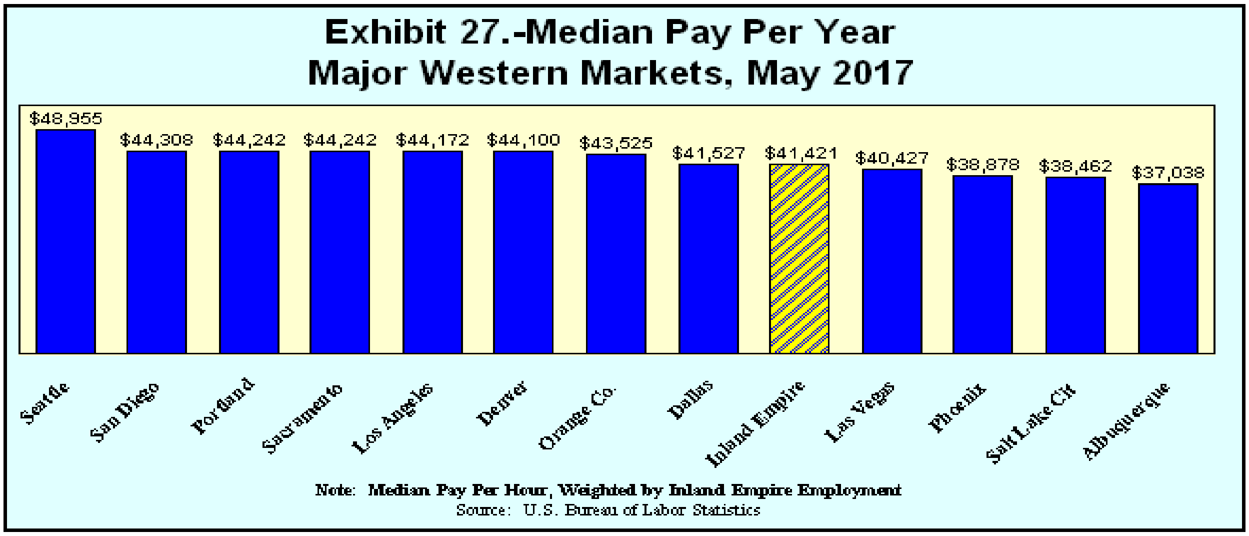



In talks with executives, it is difficult to find a scenario that will improve what should be a strong sector in Riverside and San Bernardino Counties given its competitive space and labor costs. Here, a typical response came from a major local aerospace manufacturer. Their processes require precision work by small machine shops that should be located nearby. Instead, they remain scattered throughout Southern California because owners are unwilling to move for fear it would invoke dealing with SCAQMD. A major heavy manufacturer indicates that California's electrical costs put it at a $25 million competitive disadvantage to its competitors elsewhere in the United States.

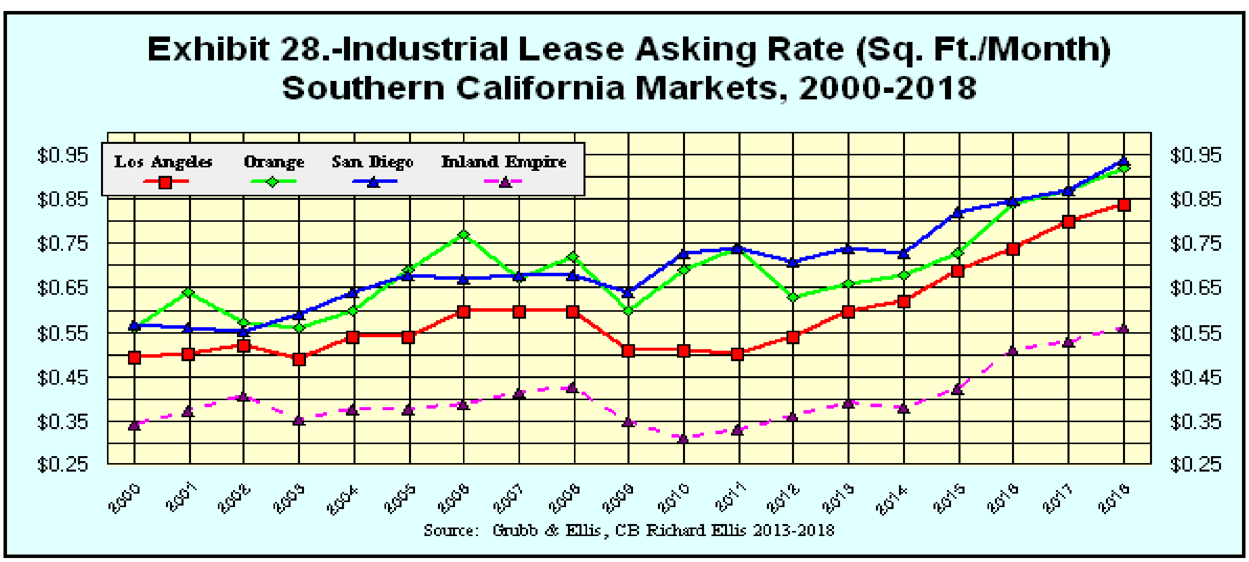
**Caution:** There is a remote scenario under which the manufacturing sector could expand faster. This is because of the competitive advantages the sector does have vis-à-vis the balance of Southern California. Two factors illustrate this:

- **Lower Median Pay:** In May 2017, the median pay for all inland area occupations was $41,421 a year. Compared to the coastal counties, that was a bargain: San

Diego ($44,308; 7.0% higher), Los Angeles ($44,172; 6.6% higher), Orange ($43,525; 5.1% higher). For consistency, the pay for each occupational group in each area was weighted by the number of jobs in that group in Riverside and San Bernardino Counties (Exhibit 27). The differentials are logical given that 21.6% of the workforce commuted outside the area in 2009-2013 and will tend to work for a little less to avoiding having to do so.




- **Low Space Cost:** In the third quarter of 2018, industrial space in Riverside and San Bernardino Counties leased for an average of $0.56 per square foot. Space in the coastal counties has always cost significantly more and differences have grown recently. Currently rates in those areas are much higher: Los Angeles ($0.84; 50.0% higher), Orange ($0.92; 64.3% higher), San Diego ($0.94; 67.9% higher) (Exhibit 28).

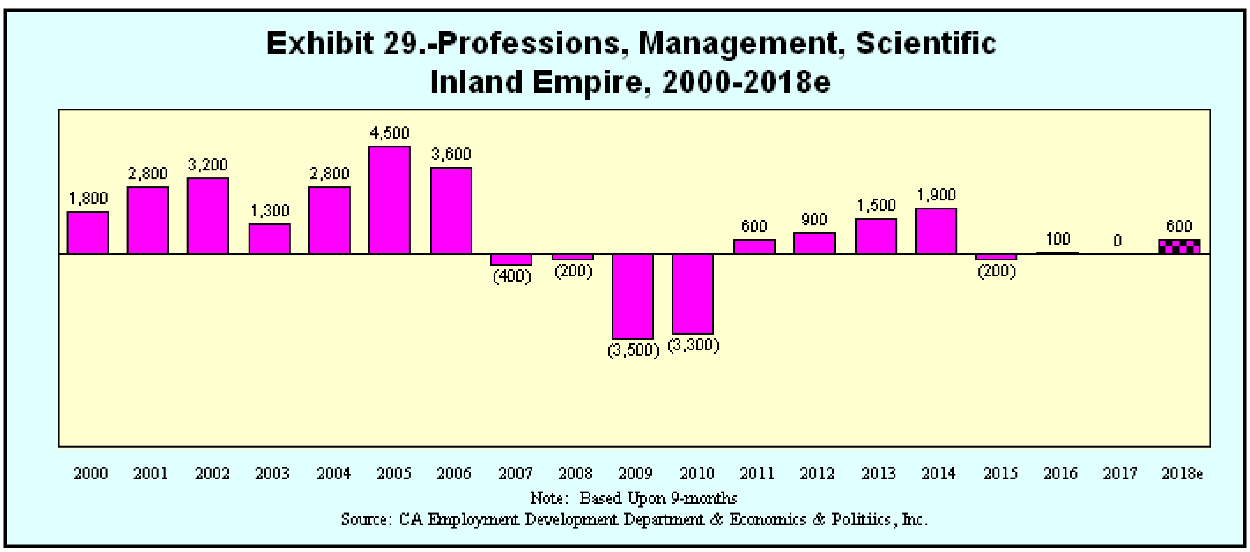



These competitive advantages may still allow some manufacturing growth in Riverside and San Bernardino Counties. This is particularly true given the area's lower worker pay scales compared to most of the metropolitan areas in California or nearby states. In any case, growth will be subdued.

- **Professional, Management & Scientific:** Recently, another potential sector could start driving the economic base in Riverside and San Bernardino Counties. This is the combination of high-end professional, scientific, technical, and management companies (Exhibit 29). From 2011 through 2017, they added 4,800 jobs. This includes, however, no growth in 2016 with the total at 48,100 positions. Growth through September 2018 indicates the sector will add (1.3%) or 600 jobs to bring the group to 48,700 jobs. That will be below the pre-recession high of 50,700 by 2,000 jobs or 3.9%.

  This growth potential has been aided by the fact that there has been a serious migration of well educated workers into the western edge of the inland area near Los Angeles and Orange Counties and similar movements out of San Diego County into the Temecula-Murrieta area. The Redlands-Loma Linda area has also attracted such activity due to the location of ESRI, the University of Redlands, and Loma Linda University Medical Center (Exhibit 11).

  Traditionally, the edge areas of Southern California have seen the migration of first workers followed later by their employers as housing prices and the availability of land have dictated the pattern of worker migration. The inland area has reached a point in its development that this is occurring for well-paid workers due to the absence of affordable upscale housing elsewhere in Southern California. Also, these sectors should be growing as the recession has ended and professionals need to migrate inland to support the housing sector and to serve the 4.59 million people and 115,252 firms in the region. Given Southern California's traffic condition, it will become increasingly difficult to do so from coastal county offices.




- **Other Sectors:** It is difficult to see any other sectors driving the economic base in Riverside and San Bernardino Counties in a major way because of the educational level of the great majority of the area's labor force. Ultimately, there will be significant growth in population-serving sectors like consumer services and eating and drinking, but that will be a reaction to the funds flowing inland because of the expansion of the sectors discussed above. Also, there should be growth in sectors related to construction now that the sector is re-emerging. That is the case because its growth will impact finance, insurance, and real estate activity, but again, these are not fundamentally the part of the region's economic base that brings fresh dollars into it.

## III. Occupational & Industry Pay

### A. Occupational Forecasts from EDD

1. From 2014-2024 EDD forecasts, the top 50 growing occupations in Riverside and San Bernardino Counties will add 71,640 jobs. Assuming full-time work, they will have weighted annual median pay of $33,801 at 2016 levels (Exhibit 32). Looking at pay levels (Exhibit 30):
    - Assuming full time work at 2,080 hours a year, the 12 lowest paying occupations (24.0%) will account for 40,140 new jobs (56.0%) and pay $20,000 to $29,999.

| Exhibit 30.-Income Levels, 2014-2024<br>Top 50 Growth Occupations | | | | |
|---|---|---|---|---|
| **Income Level** | **Occupations** | **Share** | **New Jobs** | **Share** |
| Under $20,000 | 0 | 0.0% | 0 | 0.0% |
| $20,000-29,999 | 40,140 | 56.0% | 12 | 24.0% |
| $30,000-$39,999 | 9,510 | 13.3% | 10 | 20.0% |
| $40,000-$49,999 | 10,160 | 14.2% | 7 | 14.0% |
| $50,000-$79,999 | 10,180 | 14.2% | 13 | 26.0% |
| $80,000 & Up | 1,650 | 2.3% | 8 | 16.0% |
| Totals | **71,640** | **100.0%** | **50** | **100.0%** |

- The ten second lowest paying occupations (20.0%) will account for 9,510 new jobs (13.3%) and pay $30,000 to $39,999.
- The seven mid-paying occupations (14.2%) will account for 10,160 new jobs (14.0%) and pay $40,000 to $49,999.
- The 13 second highest paying occupations (26.0%) will account for 10,180 new jobs (14.2%) and pay $50,000 to $79,999.
- The eight highest paying occupations (16.0%) will account for 1,650 new jobs (2.3%) and pay $80,000 and above.

| Exhibit 31.-Sectors & Job Growth, 2014-2024<br>Top 50 Growing Sectors | | | | |
|---|---|---|---|---|
| **Sectors** | **Job Growth** | **Share** | **Occupations** | **Share** |
| Population Serving | 35,510 | 49.6% | 5 | 10.0% |
| Construction | 28,350 | 39.6% | 26 | 52.0% |
| Health Care | 4,690 | 6.5% | 8 | 16.0% |
| Information, Science | 1,710 | 2.4% | 6 | 12.0% |
| Sales | 740 | 1.0% | 2 | 4.0% |
| Production/Transportation | 640 | 0.9% | 3 | 6.0% |
| **Top 50 Sectors** | **71,640** | **100.0%** | **50** | **100.0%** |

2. By sector, the 71,640 gains predicted by the EDD in the 50 fastest growing occupations were primarily employed in six sectors (Exhibit 31):
   - Population-serving jobs would see 35,510 new jobs (49.6%) in five occupations (10.0%) led by personal care aides (18,170).
   - Construction would see 28,350 new jobs (39.6%) in 26 occupations (52.0%).
   - Health Care would see 4,690 new jobs (6.5%) in eight occupations (16.0%).
   - Information/Science would see 1,710 new jobs (2.4%) in six occupations (12.0%).
   - Sales would see 740 new jobs (1.0%) in two occupations (4.0%).
   - Production/Transportation would see 640 new jobs (0.9%) in three categories (6.0%).
   - Interestingly, the EDD forecasts that none of the new jobs will be in Logistics, which is the fastest growing sector in Riverside and San Bernardino Counties.

**Exhibit 32.-Fifty Fastest Growing Occupations, Inland Empire, 2014-2024**

| SOC Code | Occupational Title | 2014 | 2024 | Decade Growth | Average Annual Gain | 2018 Median Annual Pay | Entry Level Education | Work Experience | On-the-Job Training |
|---|---|---|---|---|---|---|---|---|---|
| 472022 | Stonemasons | 270 | 470 | 74.1% | 5.7% | $38,410 | High school diploma or equivalent | None | Apprenticeship |
| 472171 | Reinforcing Iron and Rebar Workers | 800 | 1,360 | 70.0% | 5.4% | $67,743 | High school diploma or equivalent | None | Apprenticeship |
| 473011 | Helpers—Brick masons, Block masons, Stonemasons, and Tile and Marble Setters | 410 | 680 | 65.9% | 5.2% | $33,744 | No formal educational credential | None | Short-term on-the-job training |
| 472181 | Roofers | 1,610 | 2,600 | 61.5% | 4.9% | $51,795 | No formal educational credential | None | Moderate-term on-the-job training |
| 472051 | Cement Masons and Concrete Finishers | 2,040 | 3,150 | 54.4% | 4.4% | $47,222 | No formal educational credential | None | Moderate-term on-the-job training |
| 419091 | Door-to-Door Sales Workers, News and Street Vendors, and Related Workers | 1,230 | 1,850 | 50.4% | 4.2% | $20,328 | No formal educational credential | None | Short-term on-the-job training |
| 513099 | Food Processing Workers, All Other | 620 | 920 | 48.4% | 4.0% | $23,344 | No formal educational credential | None | Moderate-term on-the-job training |
| 472121 | Glaziers | 630 | 930 | 47.6% | 4.0% | $40,056 | High school diploma or equivalent | None | Apprenticeship |
| 312022 | Physical Therapist Aides | 410 | 600 | 46.3% | 3.9% | $27,778 | High school diploma or equivalent | None | Short-term on-the-job training |
| 473014 | Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons | 110 | 160 | 45.5% | 3.8% | $28,530 | No formal educational credential | None | Short-term on-the-job training |
| 291071 | Physician Assistants | 640 | 930 | 45.3% | 3.8% | $105,568 | Master's degree | None | None |
| 473013 | Helpers--Electricians | 490 | 710 | 44.9% | 3.8% | $30,644 | High school diploma or equivalent | None | Short-term on-the-job training |
| 291171 | Nurse Practitioners | 940 | 1,360 | 44.7% | 3.8% | $109,413 | Master's degree | None | None |

| SOC Code | Occupational Title | 2014 | 2024 | Decade Growth | Average Annual Gain | 2018 Median Annual Pay | Entry Level Education | Work Experience | On-the-Job Training |
|---|---|---|---|---|---|---|---|---|---|
| 472141 | Painters, Construction and Maintenance | 5,010 | 7,210 | 43.9% | 3.7% | $39,934 | No formal educational credential | None | Moderate-term on-the-job training |
| 472081 | Drywall and Ceiling Tile Installers | 2,870 | 4,130 | 43.9% | 3.7% | $50,606 | No formal educational credential | None | Moderate-term on-the-job training |
| 472082 | Tapers | 1,060 | 1,520 | 43.4% | 3.7% | $45,433 | No formal educational credential | None | Moderate-term on-the-job training |
| 473019 | Helpers, Construction Trades, All Other | 310 | 440 | 41.9% | 3.6% | $26,569 | No formal educational credential | None | Short-term on-the-job training |
| 472031 | Carpenters | 16,340 | 23,120 | 41.5% | 3.5% | $45,585 | High school diploma or equivalent | None | Apprenticeship |
| 352014 | Cooks, Restaurant | 10,510 | 14,850 | 41.3% | 3.5% | $23,994 | No formal educational credential | <5 years | Moderate-term on-the-job training |
| 472044 | Tile and Marble Setters | 850 | 1,200 | 41.2% | 3.5% | $55,637 | No formal educational credential | None | Long-term on-the-job training |
| 472111 | Electricians | 5,350 | 7,520 | 40.6% | 3.5% | $56,613 | High school diploma or equivalent | None | Apprenticeship |
| 172031 | Biomedical Engineers | 970 | 1,360 | 40.2% | 3.4% | $84,132 | Bachelor's degree | None | None |
| 499021 | Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 2,670 | 3,740 | 40.1% | 3.4% | $47,725 | Postsecondary non-degree award | None | Long-term on-the-job training |
| 474099 | Construction and Related Workers, All Other | 430 | 600 | 39.5% | 3.4% | $45,230 | High school diploma or equivalent | None | Moderate-term on-the-job training |
| 152031 | Operations Research Analysts | 180 | 250 | 38.9% | 3.3% | $80,297 | Bachelor's degree | None | None |
| 434121 | Library Assistants, Clerical | 780 | 1,080 | 38.5% | 3.3% | $23,496 | High school diploma or equivalent | None | Short-term on-the-job training |
| 472061 | Construction Laborers | 14,380 | 19,870 | 38.2% | 3.3% | $35,564 | No formal educational credential | None | Short-term on-the-job training |
| 311011 | Home Health Aides | 1,920 | 2,650 | 38.0% | 3.3% | $24,137 | No formal educational credential | None | Short-term on-the-job training |
| 473015 | Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters | 610 | 840 | 37.7% | 3.3% | $30,705 | High school diploma or equivalent | None | Short-term on-the-job training |
| 151134 | Web Developers | 830 | 1,140 | 37.3% | 3.2% | $56,345 | Associate's degree | None | None |
| 472161 | Plasterers and Stucco Masons | 1,180 | 1,620 | 37.3% | 3.2% | $36,265 | No formal educational credential | None | Long-term on-the-job training |
| 399021 | Personal Care Aides | 48,730 | 66,900 | 37.3% | 3.2% | $21,098 | No formal educational credential | None | Short-term on-the-job training |
| 472071 | Paving, Surfacing, and Tamping Equipment Operators | 630 | 860 | 36.5% | 3.2% | $84,218 | High school diploma or equivalent | None | Moderate-term on-the-job training |

| SOC Code | Occupational Title | 2014 | 2024 | Decade Growth | Average Annual Gain | 2018 Median Annual Pay | Entry Level Education | Work Experience | On-the-Job Training |
|---|---|---|---|---|---|---|---|---|---|
| 472221 | Structural Iron and Steel Workers | 960 | 1,310 | 36.5% | 3.2% | $73,079 | High school diploma or equivalent | None | Apprenticeship |
| 473012 | Helpers--Carpenters | 220 | 300 | 36.4% | 3.2% | $31,234 | No formal educational credential | None | Short-term on-the-job training |
| 353021 | Combined Food Preparation and Serving Workers, Including Fast Food | 34,390 | 46,790 | 36.1% | 3.1% | $20,068 | No formal educational credential | None | Short-term on-the-job training |
| 291067 | Surgeons | 450 | 610 | 35.6% | 3.1% | $286,478 | Doctoral or professional degree | None | Internship/Residency |
| 472152 | Plumbers, Pipefitters, and Steamfitters | 3,890 | 5,260 | 35.2% | 3.1% | $50,383 | High school diploma or equivalent | None | Apprenticeship |
| 131051 | Cost Estimators | 2,440 | 3,290 | 34.8% | 3.0% | $62,813 | Bachelor's degree | None | None |
| 514012 | Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic | 230 | 310 | 34.8% | 3.0% | $57,631 | High school diploma or equivalent | None | Long-term on-the-job training |
| 533041 | Taxi Drivers and Chauffeurs | 870 | 1,170 | 34.5% | 3.0% | $24,541 | No formal educational credential | None | Short-term on-the-job training |
| 472041 | Carpet Installers | 790 | 1,060 | 34.2% | 3.0% | $49,641 | No formal educational credential | None | Short-term on-the-job training |
| 312021 | Physical Therapist Assistants | 410 | 550 | 34.1% | 3.0% | $65,008 | Associate's degree | None | None |
| 319092 | Medical Assistants | 7,750 | 10,360 | 33.7% | 2.9% | $28,787 | Postsecondary non-degree award | None | None |
| 471011 | First-Line Supervisors of Construction Trades and Extraction Workers | 4,760 | 6,360 | 33.6% | 2.9% | $67,560 | High school diploma or equivalent | =5 years | None |
| 151122 | Information Security Analysts | 120 | 160 | 33.3% | 2.9% | $91,325 | Bachelor's degree | <5 years | None |
| 172031 | Biomedical Engineers | 150 | 200 | 33.3% | 2.9% | $97,290 | Bachelor's degree | None | None |
| 292032 | Diagnostic Medical Sonographers | 450 | 600 | 33.3% | 2.9% | $73,814 | Associate's degree | None | None |
| 413041 | Travel Agents | 360 | 480 | 33.3% | 2.9% | $32,883 | High school diploma or equivalent | None | Moderate-term on-the-job training |
| 533099 | Motor Vehicle Operators, All Other | 780 | 1,040 | 33.3% | 2.9% | $36,440 | No formal educational credential | None | Short-term on-the-job training |
| | **TOTAL: 79,530 New Jobs** | **186,844** | **258,494** | **38.3%** | **3.3%** | **$33,801** | | | |

Source: Standard Occupational Code descriptions and forecasts, CA Employment Development Department

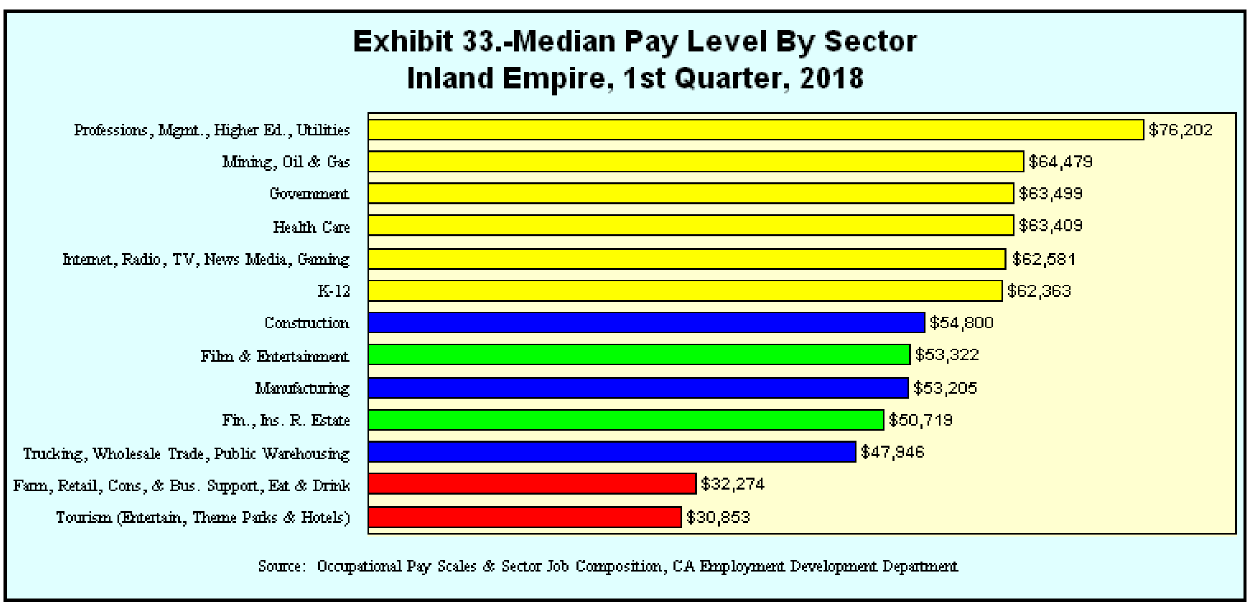
## B. Median Pay by Sector

1. A key need in Riverside and San Bernardino Counties is for sectors that offer primary wage earners access to middle class earnings. Three steps are needed to determine median pay by sector:

- Median pay by standard occupational code for the Inland Empire in the first quarter of 2018 was downloaded from the EDD.
- The group of occupational codes in each sector for California was downloaded from the EDD together with employment in each occupation for each sector. These data were not publically available for sectors within the state's various jurisdictions.
- The occupational array and median pay levels in Riverside and San Bernardino Counties were combined to show the weighted array of jobs and their median pay by sector in the first quarter of 2018 in the inland area.

2. The results from this array are as follows (Exhibit 33):

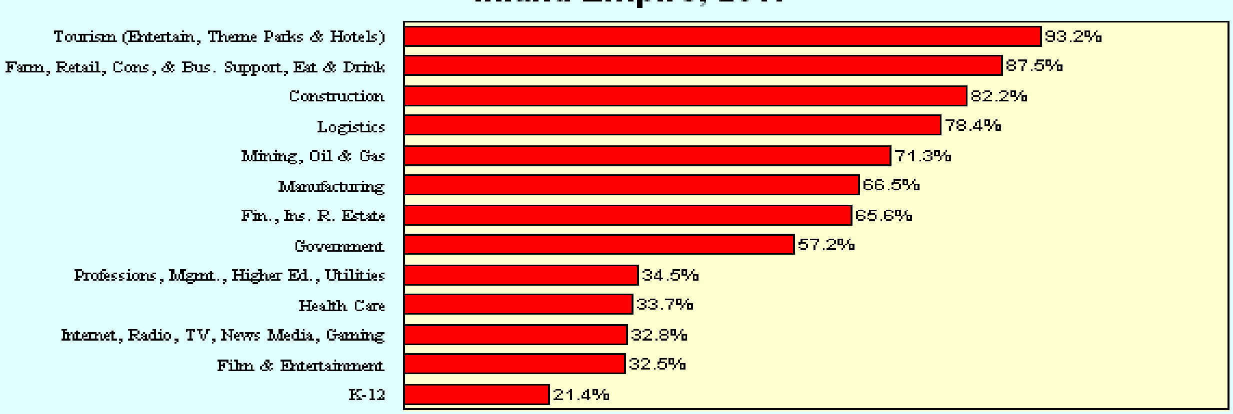
   - **High Paying Sectors (yellow):** The six highest paying categories had median pay levels from $62,363 to $76,202 in 2018. These included five private sector groups, most notably health care, higher education, and all levels of government. They were responsible for 38,847 new jobs in the 2011-2018 recovery and expansion period or 11.1% of the growth. Some jobs in these sectors offer opportunities for which the marginally educated can be trained.
   - **Median Paying Sectors (blue & green):** Five mid-range sectors had median pay levels from $47,946 to $54,900 in 2018. They included the three essentially blue collar or technical sectors responsible for 139,663 or 39.9% of new jobs from 2011-2018. There were also two office-based groups (finance, insurance & real estate; film & entertainment) plus K-12 education that were responsible for 29,333 new jobs or 8.4% of the total. Marginally educated workers can succeed in these sectors.
   - **Lower Paying Sectors (red):** Lower paying sectors had median pay levels ranging from $30,853 to $32,274. These population-serving and business-servicing sectors saw 141,936 new jobs from 2011-2018 or 40.6% of the area's total growth. These sectors can help secondary wage earners move families into the middle class.



C. **Status of Sectors Requiring Lower Levels of Education:** A second need in Riverside and San Bernardino Counties is for sectors that offer workers with high school or less education the ability to start work. The EDD's data on qualifications to enter work in occupations shows that numerous sectors allow people to do so (*Exhibit 34*). Two are low paying, but would help a family's secondary wage earner; the rest can apply to a family's principal income producer:

1. **Tourism** (*median income: $30,853*) allows 93.2% of workers to have marginal educations. While growth will be rapid, there are not many good paying jobs.
2. **Broad Group of Low Income Sectors** (*median income: $32,274*) allows 87.5% of workers to enter with high school or less schooling. These sectors will also grow rapidly but offer relatively few good paying jobs.
3. **Construction** (*median pay: $54,800*) has 82.2% of workers in jobs requiring minimal levels of formal education, though apprenticeship is necessary for many types of work. The sector is finally beginning to add employees but is having trouble finding them.
4. **Logistics** (*median pay: $47,946*) has 78.4% of its workers in jobs requiring high school or less schooling. The sector has been the fastest growing in the inland area and should continue.
5. **Manufacturing** (*median pay: $53,205*) will offer only a little job growth. Industry leaders indicate, however, that a large share of their existing technicians are starting to retire. Of workers in the sector, 66.5% needed high school or less schooling. Technical skills training, however, is a necessity.
6. **Finance, Insurance & Real Estate** (*median pay: $50,719*) will grow as the real estate market recovers. In this sector, 65.6% of workers are in jobs requiring minimal entry-level education though many require specific state certifications.
7. **Health Care** (*median pay: $62,409*) has a smaller share of workers in jobs with minimal educational requirements (*33.7%*). The sector is expected to grow rapidly, however, and those getting certification to work within it will often find themselves interested in moving up within the sector.

**Exhibit 34.-Share of Jobs Available, High School or Less Schooling Inland Empire, 2017**

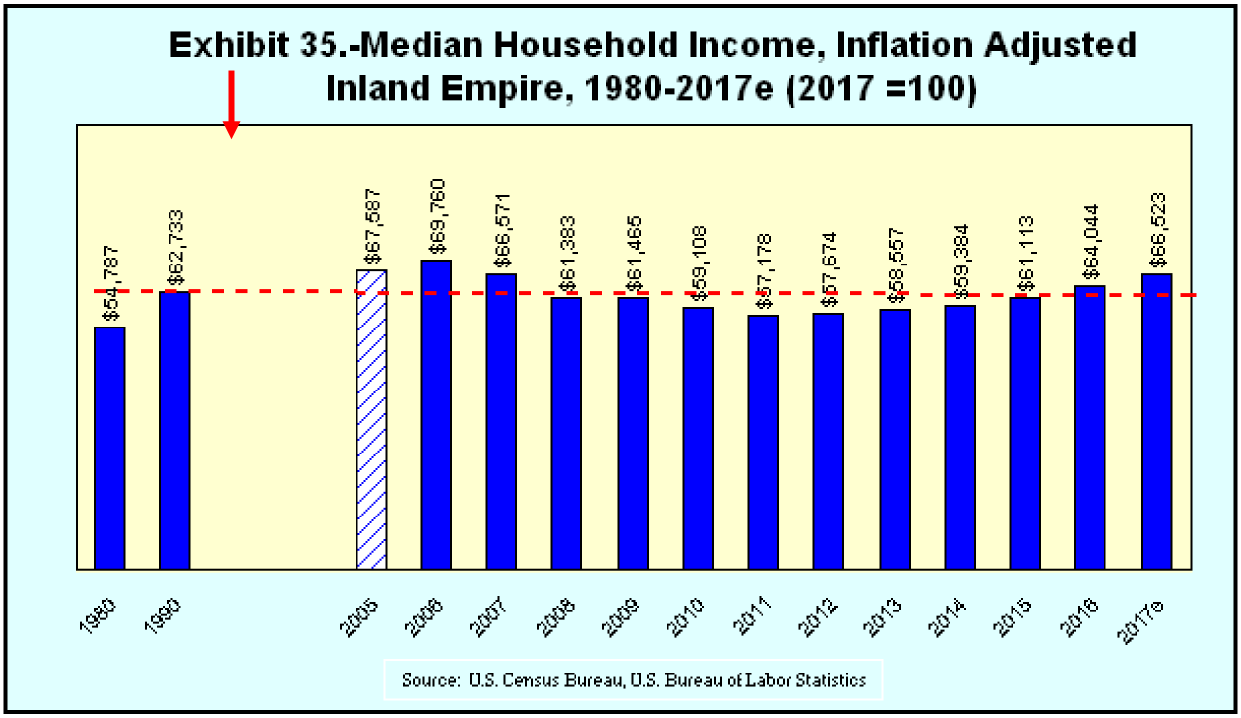


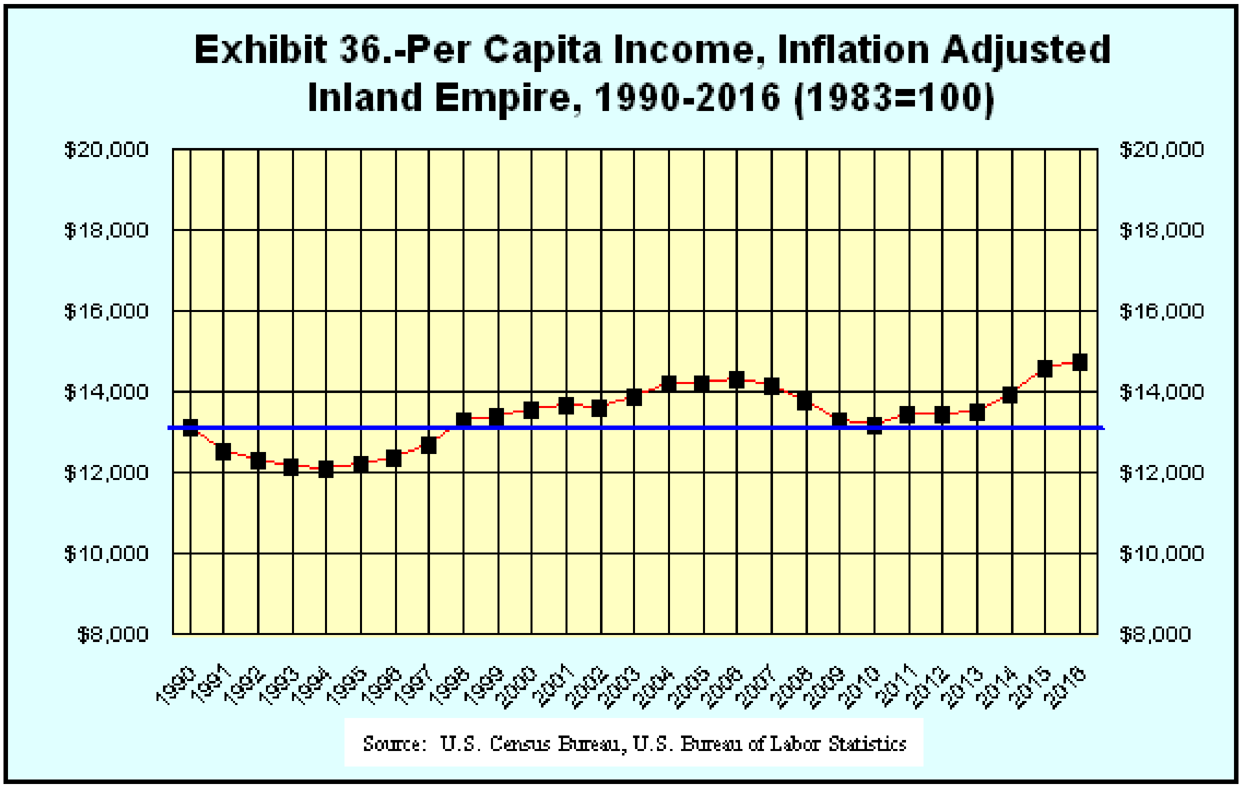

Source: Occupational Pay Scales & Sector Job Composition, CA Employment Development Department

## IV. Income Trends

Households in Riverside and San Bernardino Counties have lately seen a little increased prosperity:

**A. Median Income:** Median household income is still up slightly since 1990. Using median incomes adjusted to 2017 price levels, the 1990 level was $62,733. In the early 2000s, the trend for the inland area's household purchasing power was up reaching a peak during the mortgage boom at $69,760 in 2006. That was 11.2% over the 1990 level. The Great Recession and its aftermath saw household purchasing power trend down to 2011 reaching $57,178 or 8.9% below the 1990 level. Since then, there has been a slow recovery taking the level to $66,523 in 2017, 6.0% above the 1990 level (Exhibit 35).






**B. Per Capita Income:** The trend for per capita income adjusted to 2016 prices in Riverside and San Bernardino Counties showed that the purchasing power of average individuals declined significantly from $13,160 in 1990 to $12,161 in 1994 (7.6%) with the aerospace/defense recession (Exhibit 36). From there, per capita income rose to a record $14,361 peak in 2006 or 9.1% over the 1990 level. With the Great Recession, the purchasing power of an average person fell to $13,212 by 2010, off 0.4% from 1990. More recently, a gain to a record level of $14,517 in 2016 pushed per capita income to 12.2% above the 1990 level. Unfortunately, per capita income, as opposed to median income, has the disadvantage of being biased to the high side by people with very high incomes.

**C. Income Distribution:** Finally, Riverside and San Bernardino Counties has not been immune to the imbalance in income distribution that has plagued the nation. The share of its 1,348,213 households earning under $25,000 in 2017 was 18.9% with an income share of just 3.2% (Exhibit 37). Another 21.6% earned $25,000-$49,999 with only a 10.1% income share. Middle class households included the 18.1% earning $50,000-$74,999 with 14.2% of income, and 12.9% making $75,000-$99,999 with 14.2% of income. The well-off were the 16.1% making $100,000-$149,999 with a 25.3% income share and the 12.5% earning over $150,000 with 32.9% of income.

*Economist's Note: The 28.6% of earning over $100,000 captured a combined 58.2% of income. The 40.5% of families earning below $50,000 had a 13.3% share of the inland area's income.*

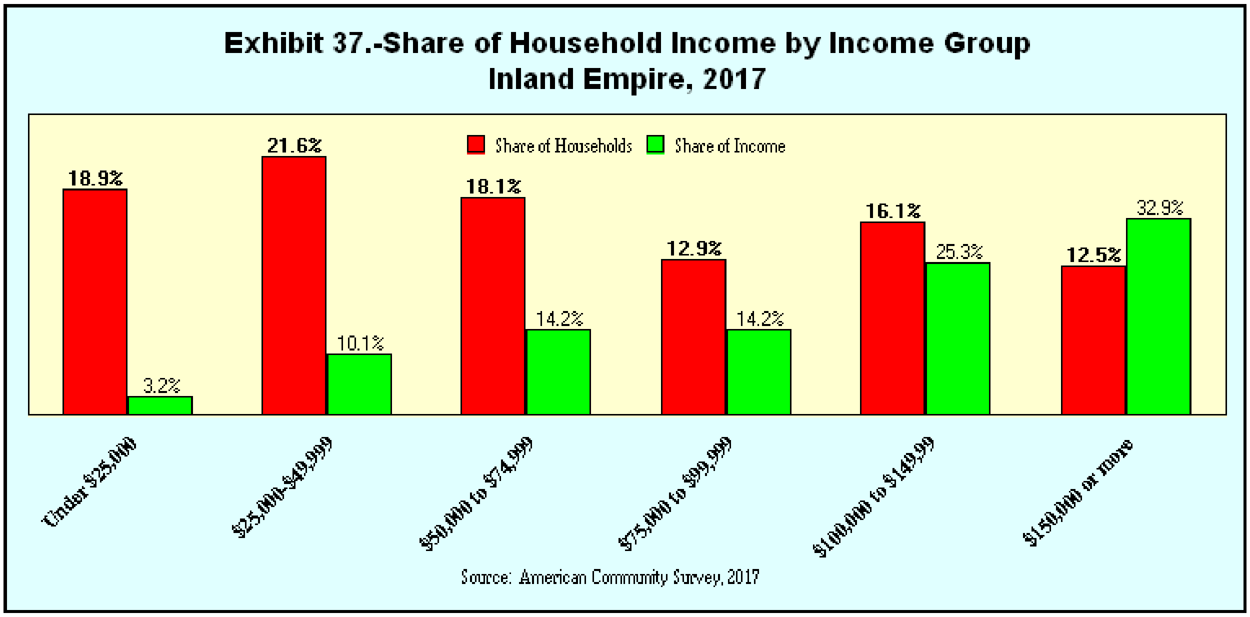


Exhibit 37.-Share of Household Income by Income Group
Inland Empire, 2017
Share of Households
Share of Income
18.9%
3.2%
21.6%
10.1%
18.1%
14.2%
12.9%
14.2%
16.1%
25.3%
12.5%
32.9%
Under $25,000
$25,000-$49,999
$50,000 to $74,999
$75,000 to $99,999
$100,000 to $149,99
$150,000 or more
Source: American Community Survey, 2017

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**SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS**
900 Wilshire Blvd., Ste. 1700, Los Angeles, CA 90017
Phone: (213) 236-1800
www.scag.ca.gov

**IMPERIAL COUNTY**
1503 North Imperial Avenue, Suite 104
El Centro, CA 92243
Phone: (760) 353-7800

**ORANGE COUNTY**
OCTA Building
600 South Main Street, Suite 1233
Orange, CA 92863
Phone: (714) 542-3687

**RIVERSIDE COUNTY**
3403 10th Street, Suite 805
Riverside, CA 92501
Phone: (951) 784-1513

**SAN BERNARDINO COUNTY**
Santa Fe Depot
1170 West 3rd Street, Suite 140
San Bernardino, CA 92418
Phone: (909) 806-3556

**VENTURA COUNTY**
950 County Square Drive, Suite 101
Ventura, CA 93003
Phone: (805) 642-2800

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